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Foreign Policy Benefits from Subsidization of Trade with Eastern Europe

Benjamin Zycher

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PREFACE

This study was prepared for the Under Secretary of Defense for Policy as part of a larger study of differences in interests between the Soviet Union and its East European allies in the Warsaw Pact. It examines the use of economic policy by the West as a means of reducing, from the Soviet viewpoint, the prospective political and military reliability of the East European nations. Examples are depicted of areas in which a policy of expanded economic interaction might be implemented. The study should be of interest to policymakers and others concerned with Warsaw Pact foreign and economic policy, policies designed to strengthen deterrence, and East/West economic relations.

The study was carried out in the International Security and Defense Policy Program of RAND's National Security Research Division. That division also houses the National Defense Research Institute, the Federally Funded Research and Development Center sponsored by the Office of the Secretary of Defense and the Organization of the Joint Chiefs of Staff.



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SUMMARY

This study examines economic policy tools with which the United States or NATO collectively might reduce the prospective political/military reliability of the non-Soviet Warsaw Pact (NSWP). The argument presented in the study is that growing long-term economic relations between the NSWP and the West could have just such an adverse effect on reliability from the Soviet viewpoint. Since a reduction in NSWP reliability is consistent with a strengthening of deterrence, promotion of growing economic ties with Eastern Europe may serve U.S. and NATO interests.

This policy would differ from the current "differentiation" policy pursued by the United States in that it would not attempt to shape NSWP behavior through a system of positive and negative incentives. Instead, it would attempt to exacerbate Soviet concerns about NSWP political and military reliability by expanding economic ties between the NSWP and the West in a long-term evolutionary fashion. The evidence of Soviet economic policy in Eastern Europe suggests that growing ties might have that effect on the perceptions of the Soviets, who already have good cause for concern about the prospective reliability of the East Europeans. These Soviet concerns about the prospective military reliability of the NSWP stem in substantial part from the hard evidence of the political unreliability of those same nations.

If expanded economic ties between the NSWP and the West can be expected to strengthen deterrence, then some subsidization of trade expansion may be justified as a national security investment. These resources can be viewed as a substitute for more explicit military spending, because they can be expected to reduce both the likelihood and the likely success of a Warsaw Pact attack on Western Europe. On the other hand, they can be viewed as a complement in that a stronger NATO force structure can be expected to increase the probability that latent NSWP hostility toward the Soviets would manifest itself; and expanded NSWP/Western economic ties may reduce the prospective ability of the Warsaw Pact to conduct a successful offensive against NATO, thus increasing the deterrent effect of any given level of NATO forces. Thus, one should not conclude that policies designed to reduce NSWP reliability would justify a reduction in explicit NATO defense preparedness.

Because it is difficult to measure changes in the prospective "reliability" of individuals and nations, our goals and expectations with respect to policies designed to increase economic ties with Eastern

Europe must remain modest. This is particularly so because the benefits to be derived are unquantifiable and accrue in ways that are not wholly predictable. Moreover, the realities of the federal budget preclude large spending programs. Therefore, the study assumes that a budget of, say, \$500 million per year is available for subsidization of expanded economic ties with the NSWP. That figure is neither a recommendation nor a prediction of spending outcomes; it is assumed solely for purposes of discussion.

The NSWP forces constitute a substantial proportion of total Warsaw Pact forces, particularly under the assumption of a short-warning (forces-in-place) Warsaw Pact attack on NATO. Moreover, the numerical superiority required for high confidence in a surprise attack cannot be achieved without the NSWP forces in the Northern Tier (Czechoslovakia, the German Democratic Republic and Poland). And East European territory is important for transportation, communication, logistics, and other activities; for the Soviets to provide rear area security and conduct offensive operations against NATO without important NSWP participation is not a realistic option, even when a longer Soviet mobilization period is utilized.

In short, the prospective reliability of the NSWP forces is an important consideration. Its significance is reflected by the extensive Soviet efforts to enhance the prospective reliability of the NSWP forces. The short-warning scenario is considered widely to be realistic in part because it allows the least amount of time for the self-interest of the East Europeans to manifest itself. The Warsaw Pact command structure is designed to fragment NSWP national command over NSWP forces. NSWP officers and conscripts are subjected to intensive political indoctrination emphasizing the compatibility of nationalism and "socialist patriotism," and class hatred of the "imperialists." NSWP components of the Warsaw Pact Combined Armed Forces (CAF) are detailed from their national defense ministries and are subordinated instead to Soviet armies, fronts, or theaters of military operations (TVDs). The Groups of Soviet Forces are stationed in Eastern Europe in part in an effort to ensure reliability. Mobilization is designed to take place *en masse* rather than as a result of decisions in each of the separate countries. And the NSWP units may be "sandwiched" between Soviet units during combat as a means of reducing the ability of the East Europeans to opt out of conflict; this operational approach may be used despite the resulting difficulties in logistics and other important activities.

The clear Soviet concern about the prospective military reliability of the NSWP forces stems in substantial part from the hard evidence of East European political unreliability. Soviet economic policy in

Eastern Europe during the entire postwar period suggests strongly that expansion of economic ties between Eastern Europe and the West would carry adverse implications for political reliability from the Soviet viewpoint. For the Soviets, expanded trade is likely to lead in the direction of greater independence for Eastern Europe; thus, the peculiar trading arrangements employed within the Council for Mutual Economic Assistance (CMEA) generate implicit subsidies for the East Europeans that are a function of continued trade with the Soviets instead of the West. The recent CMEA Science and Technology Agreement is designed to provide the technology needed for greater economic efficiency without use of market mechanisms or greatly expanded Western trade relations with Eastern Europe.

Incentives for the East Europeans to expand trade with the West may be particularly strong now. Supplies of raw materials and fuels from the Soviet Union are declining. There is an increased need for Western technology for improvement of the efficiency of resource use. There is a need to increase competitiveness in world markets in order to earn the hard currency needed for debt service. Thus, the economic interests of the NSWP governments may be inconsistent with the reliability interests of the Soviets, perhaps providing openings for Western policies designed to exacerbate such Soviet concerns.

Western policies should be designed to increase economic interaction between the NSWP and the West because such expansion would have the desired adverse reliability impact from the Soviet viewpoint. The policies should not encourage or provide resources easily fungible into NSWP military programs. The policies should be designed to foster good will among the East European populations, particularly because significant proportions of the NSWP forces are manned with conscripts. Thus, the West should offer economic assistance in areas that represent conspicuous failings of socialism, in which solutions are costly, and in which creation of popular perceptions of Western superiority and generosity is relatively straightforward. The policies moreover should serve some interest of the NSWP regimes; if they do not, then substantial progress is unlikely to be achieved. Finally, the policies at a minimum should not discourage the creation and growth of independent interest groups.

Four examples of areas in which opportunities for trade expansion with Eastern Europe are important can be summarized as follows: pollution control equipment, nuclear power safety equipment, medical supplies and equipment, and promotion of joint business ventures. These examples are illustrative only; a broad range of initiatives and sectors is worthy of consideration. Pollution problems are severe in Czechoslovakia, the German Democratic Republic (GDR), and Poland.

Incentives for enhancement of environmental quality are weak, since such values are difficult to incorporate into measures of economic growth. Moreover, investments designed to improve air and water quality would interfere with fulfillment of production plans, and would divert resources from investments of greater short-run importance. And much of the necessary equipment can be obtained only with hard currency. The problem is exacerbated by the use of high-sulfur brown coal in much of Eastern Europe, which results in severe sulfur dioxide emissions. The emphasis upon heavy industry in Eastern Europe leads to high waste water effluent levels, which can be treated only with expensive processes. As a result, the data indicate that air and water pollution levels in the NSWP are severe, and are imposing large costs in terms of both health and the efficiency of production.

There is evidence of increasing official concern about the costs and adverse effects of environmental deterioration in Eastern Europe. Official criticism of pollution levels has grown. Some international cooperation agreements have been made by the NSWP governments. Environmental protection tends to figure more prominently in central economic plans. However, substantial progress is likely to be impeded severely by financial constraints. This convergence of heightened importance and financial hardship may provide for a community of interests in terms of greater NSWP economic interaction with the West in this area. This is particularly true since the West has many years of experience in the production, installation, and operation of pollution control systems. Thus, it may be appropriate to subsidize an increase in NSWP use of such Western systems and expertise. If Czechoslovakia, the GDR, and Poland can be induced by such a subsidy program to increase their environmental protection spending by, say, 0.5 percent of GNP per year, a policy of subsidizing all of the interest on that investment would cost about \$300 million per year as a crude approximation.

Eastern Europe as a whole is endowed poorly with energy resources and has come to depend heavily upon Soviet supplies. Soviet willingness to supply (and subsidize the use of) fuels by the East Europeans has diminished. The shortage of hard currency makes a substantial shift toward fuel purchases in hard currency markets an unattractive option. This situation has led the East Europeans to emphasize, among other things, ambitious nuclear power construction programs; in the Northern Tier alone, ongoing and planned construction by the year 2000 totals almost 15,000 megawatts of capacity.

Given this context, the accident at Chernobyl has had a strong impact. At the political level, the NSWP regimes have found it necessary to respond to heightened safety fears among their respective

populations. At the economic level, Chernobyl has not reduced the perceived importance of the East European nuclear programs, but new safety concerns have increased the cost of the programs at precisely the time that the projected NSWP energy balance has deteriorated. This presents an opportunity for expansion of Western economic ties with Eastern Europe, since the West has extensive experience in nuclear safety design and construction, and an excellent safety record. A policy of subsidizing the interest on the safety portion of the Northern Tier nuclear construction investment programs would cost, as a crude approximation, about \$31 million per year.

Health care delivery in Eastern Europe suffers from many problems, among them a pervasive shortage of drugs, equipment, supplies, and other such necessities of modern health care. This is a natural result of incentives inherent in central planning, and is exacerbated by the hard currency shortage in Eastern Europe, which increases the difficulty of obtaining needed supplies from the West. Moreover, technological obsolescence is a pervasive characteristic of the public health services in the NSWP. Official criticism of the shortcomings of health care delivery has grown, and there is evidence of widespread popular dissatisfaction. One approach for the West would be subsidized sale to Eastern Europe of drugs and medicine, of which there exists a pervasive shortage. A policy of subsidizing, say, 5 percent of the cost of drug and medicine sales to the NSWP would cost about \$150 million per year, again, as a very crude approximation. For the Northern Tier alone, the cost would be about \$100 million per year.

The goal of the policies discussed in this study is expansion of economic ties between the NSWP and the West generally; the three areas discussed above are illustrative only. Therefore, it is useful to consider promotion of institutional arrangements that could serve as vehicles for expansion of economic ties in many areas. The three areas noted above could serve, for example, to illuminate opportunities not obvious at present. One such institutional arrangement is joint business ventures in Eastern Europe by Western and East European firms. With the exception of the GDR, the East European regimes have displayed increased interest in such arrangements, and generally have relaxed restrictions in an effort to promote them. Of particular interest to the regimes are joint ventures in production of goods that can be exported to hard currency markets or that can substitute for hard currency imports. This emphasis on production for hard currency sales is likely to be consistent with the opportunities available to Western firms participating in joint ventures in Eastern Europe.

At present, the level of Western direct investment in Eastern Europe is low, and is concentrated largely in Hungary and Poland.

This low base, combined with the new enhanced interest of the NSWP regimes, suggests that a significant expansion over time in joint business activity is achievable. If a goal of, say, \$100 million in new capital investment each year by Western firms in Eastern Europe is reasonable, a policy of subsidizing all of the interest on this investment would cost about \$10 million per year.

Since our goals and means must remain modest, it follows that the process of expanding contacts and exploring areas of mutual interest should be pursued at a modest level as well, perhaps through established multilateral and bilateral forums. Examples are the Committee on Security and Cooperation in Europe; multilateral arms talks, where informal discussions and contacts can be pursued; the UN Commission for Europe; and the regular meetings on specific issues that take place already. The agendas for bilateral visits can include consideration of areas for expanded economic cooperation. In short, the process of expanding contacts and discussions, and of reaching agreements, can be maintained at a reasonably low-key level, while serving Western interests nonetheless.

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I. INTRODUCTION

The goal of this study is an exploration of economic policy tools with which the United States or NATO could reduce the prospective political and military reliability of the non-Soviet Warsaw Pact (NSWP). Because NSWP reliability must be considered from the viewpoint of Soviet decisionmakers, the policies must be designed to induce particular kinds of NSWP behavior that can be expected to exacerbate Soviet concerns. In brief, the argument presented below is that growing long-term economic interaction between the NSWP and the West is likely to have just an adverse reliability effect from the Soviet viewpoint. Since reduced NSWP reliability is consistent with a strengthening of deterrence,¹ promotion of growing ties may serve U.S. and NATO interests.

This type of policy would differ in important respects from the current "differentiation" policy pursued by the United States.² Differentiation seeks to reward East European nations pursuing policies which differ from Soviet policies with respect to foreign affairs, more liberal emigration, internal political freedom, and the like. Thus, differentiation seeks to influence East European behavior through specific kinds of responses to that behavior. Although this study does not examine the merits of differentiation, it is inevitable that the complexities and conflicts inherent in application of a differentiation policy will result in anomalies, as a given East European nation can differ from the Soviet Union in some kinds of behavior more than in others. This is illustrated by past U.S. policy toward Poland and Romania: in many ways, Romania has been treated far better by the United States than has Poland despite the far looser constraints on political opposition in the latter nation.³

The economic policies discussed in this study are not intended to reward or punish particular East European policies. Instead, they are

¹See Sec. II on the importance of the NSWP forces in Soviet military planning for a European war.

²For a description of the differentiation policy, see the prepared statement of Rozanne Ridgway in *U.S. Policy Toward Eastern Europe, 1985*, Hearings Before the Subcommittee on Europe and the Middle East, Committee on Foreign Affairs, House of Representatives, October 2, 1985. See also Lincoln Gordon, *Eroding Empire: Western Relations with Eastern Europe*, Washington: Brookings Institution, 1987, especially Ch. 4; and Zbigniew Brzezinski, *Alternative To Partition*, New York: McGraw-Hill Book Co., 1965, Chs. 3-4.

³The remaining sanctions against Poland have been removed in the wake of the February 1987 visit by Deputy Secretary of State Whitehead to Poland.

intended to lead to gradual but long-run growth in economic relations between the NSWP and the West. That is, they are intended to induce a specific kind of East European economic behavior that can be expected to exacerbate Soviet doubts about NSWP political and military reliability. As discussed more fully below in Sec. II, the Soviets have significant doubts about the prospective military reliability of the NSWP forces, particularly in terms of offensive operations against NATO. These Soviet concerns stem not only from past NSWP military behavior during internal political disturbances, but more generally from the obvious *political* unreliability of the NSWP regimes and populations. This political unreliability results from important differences in interests between the East European states and the Soviet Union. It stems from the poor results of the Soviet economic system endured by the East European populations. And it results also from the low esteem for the Soviet Union held by large segments of the East European societies.

Moreover, there exists substantial evidence of Soviet fears about the adverse effects upon NSWP political reliability of growing economic ties between Eastern Europe and the West. In short, this study begins with a premise, defended in more detail below in Sec. II, that growing economic ties between the NSWP and the West would increase Soviet worries about the political reliability of the NSWP, which in turn would carry adverse implications for NSWP *military* reliability in the minds of Soviet decisionmakers. The basic premise can be summarized as follows: Soviet concerns about NSWP military reliability can be exacerbated by greater economic ties between Eastern Europe and the West because such growth in economic interaction will increase Soviet doubts about NSWP political reliability.

If increased economic ties between the NSWP and the West can be expected to strengthen deterrence, then some subsidization of such interaction may be appropriate as a national security investment.⁴ Resources invested in an effort to achieve reduced NSWP reliability can be viewed as both a substitute and a complement for explicit NATO military spending intended to deter a Soviet attack on Western Europe. They are a substitute in that they can reduce both the likelihood and the likely success of a Warsaw Pact attack on Western Europe, thus perhaps reducing the necessary scale of explicit NATO

⁴Since strengthened deterrence would serve the interests of both the NSWP and NATO, it is appropriate in principle that both sides subsidize efforts to increase economic ties. It is not realistic to expect large contributions from the East Europeans, if for no other reason than the economic straits in which those nations find themselves. However, it may be quite reasonable to expect considerable NSWP cooperation with the West in efforts to expand economic relations.

defense investment. On the other hand, many observers argue that NSWP unreliability is likely to be most prominent in an environment in which a Warsaw Pact offensive against NATO is stalled or is in retreat.⁵ To put it differently, future NSWP disloyalty becomes more likely as the prospective penalty for such behavior is reduced by greater (relative) NATO military power. Thus, from the Soviet viewpoint, NATO investments in force structure and in East European unreliability are complements in that an expanded NATO force structure increases the likelihood that latent NSWP unreliability will manifest itself, while greater NSWP/Western economic ties may reduce the prospective ability of the Warsaw Pact to conduct a successful offensive precisely because of reduced NSWP reliability, thus increasing the deterrent effect of any given level of NATO forces. The relation between policies designed to reduce NSWP reliability and more explicit defense investment lies beyond the scope of this study; it is possible, for example, that some kinds of NATO enhancements that appear threatening to Eastern Europe could increase NSWP reliability. Suffice it to say that one should avoid a quick conclusion that expanded NSWP/Western economic ties would justify a reduction in explicit NATO defense preparedness.

It is difficult to measure (changes in) the prospective "reliability" of individuals. *A fortiori*, it is difficult to measure the reliability of militaries or of nations acting collectively—or, perhaps, not so collectively. And the effects upon NSWP "reliability" of Western policies cannot be other than somewhat ambiguous, except perhaps directionally. Therefore, our goals and expectations with respect to such policies must remain modest. A strong case can be made that there exists room to further NATO interests in this realm, and the central point of this study is that opportunities to exploit such openings are present. However, it must be reiterated that no "magic bullet" that will shatter the Warsaw Pact is available, and the problem of deterrence in the European theater will not be solved by the policies discussed below. Nonetheless, there is scope for progress in that regard.

A body of literature has examined the benefits and costs of subsidies for trade with Eastern Europe and the Soviet Union.⁶ In general, the literature finds that the increased trade benefits resulting from such

⁵See, for example, Alexander Alexiev and A. Ross Johnson, *East European Military Reliability: An Emigre-Based Assessment*, R-3480, The RAND Corporation, October 1986.

⁶See, e.g., Keith Crane and Daniel Kohler, *The Effects of Export Credit Subsidies on Western Exports to the Soviet Bloc*, The RAND Corporation, N-2106-USDP, June 1984. See also Daniel Kohler, Stephen Salant, Donald Henry, Keith Crane, and Mark Hopkins, *Economic Cost and Benefits of Subsidizing Western Credits to the East*, The RAND Corporation, R-3129-USDP, July 1984.

subsidies are likely to be outweighed by the attendant costs. Hard currency constraints in the Eastern Bloc preclude increases in trade activity significantly greater than the hard currency transfers. The literature notes, moreover, that the resource transfers at least in principle are fungible into increased military spending, hardly an appropriate goal of Western policy toward Eastern Europe.

The earlier literature concentrates upon the economic effects of the subsidies, whereas the present study considers their effects on East European behavior in a foreign policy context.⁷ Moreover, the subsidies examined in the earlier literature appear to be, in effect, lump-sum subsidies, equivalent to pure resource transfers.⁸ The trade subsidies explored in Secs. IV-VII are envisioned as matching subsidies. Thus, they could be obtained by the East Europeans only as an ancillary benefit of behavior sought by the West. That behavior is increased trade with the West, a goal that is discouraged by Soviet trade policy within the Council for Mutual Economic Assistance (CMEA).⁹

Policies designed to expand such economic ties necessarily would require Western concessions in the short run, to be followed by benefits that are unquantifiable and that accrue in unpredictable ways. Moreover, the benefits in many ways are unobservable. Those realities combine with U.S. federal budget constraints to preclude large spending programs for purposes of expanding NATO/NSWP economic ties. In addition, the experience of the 1970s imposes clear limits on the level of resource transfers to Eastern Europe. And there are likely to be limits to the willingness of the East European regimes to allow Western influences to permeate their economies. Therefore, let us assume that the budget available for subsidization of expanded economic ties with Eastern Europe is, say, \$500 million per year.

That figure is neither a recommendation nor a prediction of the spending outcome should the general policy approach discussed in this report be implemented. It is instead a somewhat arbitrary figure intended to provide a crude "order-of-magnitude" sense of what such trade subsidization policies might entail in total, in order to put the following discussion in a more useful context. Total trade between

⁷See, however, Stephen Salant, *Export Subsidies as Instruments of Economic and Foreign Policy*, The RAND Corporation, N-2120-USDP, June 1984, for a heuristic discussion of how matching subsidies can encourage desired behavior in a foreign policy context.

⁸The German Democratic Republic (GDR), for example, has received large lump-sum subsidies from the Federal Republic of Germany (FRG) for years, and has had the most rapid increases in defense spending in the Warsaw Pact. Nonetheless, the prospect of harm to growing FRG/GDR economic ties led GDR Chairman Erich Honecker to display considerable displeasure with Soviet policy in the wake of the INF deployment.

⁹See the discussion in Sec. II.

Eastern Europe and the developed nations in 1986 was about \$45.8 billion, of which about \$23.1 billion were East European imports.¹⁰ The respective figures for the Northern Tier (Czechoslovakia, the GDR, and Poland) are \$30.6 billion and \$15.5 billion. Thus, the subsidized trade between Eastern Europe and the West that is implicit in the sections below represents an increase that is a significant proportion of existing trade. However, it is far less than, say, a doubling. And the subsidy level would be a very small proportion of existing trade.

Notwithstanding the necessarily modest means and expectations, the argument presented in this study is that an opportunity exists for the West to use economic policy to reduce NSWP reliability in an evolutionary fashion. Such benefits might be difficult to measure, but that would be true for the Soviets as well. Economic conditions and other factors in Eastern Europe have increased incentives for those regimes to increase their Western economic ties. Soviet economic problems, and the resulting reduced willingness of the Soviets to subsidize the NSWP economies, add to this incentive. Moreover, efforts by the Soviets to project a more moderate image may increase the room for maneuver enjoyed by the East Europeans. And it is clear that the European members of NATO are more interested in cooperation than confrontation with their neighbors to the East; a policy of expanded economic ties thus may reduce the ability of the Soviets to drive wedges between (or "decouple") the United States and Western Europe.

¹⁰See *The Handbook of Economic Statistics, 1987*, Central Intelligence Agency, September 1987.

II. SOVIET RELIABILITY CONCERNS

THE IMPORTANCE OF NSWP FORCES

Soviet hegemony in Eastern Europe serves several Soviet policy and political goals, among them the provision of a bulwark against the seepage of politically adverse ideology into the Soviet Union from the West, and creation of a legitimizing rationale—leadership of a world economic “system”—for undemocratic rule at home. Moreover, Eastern Europe potentially can provide economic and technological resources—perhaps acquired from the West—for Soviet use, and the division of Germany prevents a resurrection of the German threat to the East. Foremost among the Soviet goals is the role of the non-Soviet Warsaw Pact as a military buffer and springboard with respect to Western Europe.¹¹ In terms of Soviet/Warsaw Pact offensive operations against Western Europe, East European territory is used by advance Soviet forces for basing and logistics, and if additional Soviet forces were to move westward, the East European militaries would play an important logistics role in support of ongoing offensive operations. They would conduct significant air defense and communications functions as well.

In addition, under the assumption of a short-warning (forces-in-place) Warsaw Pact attack on NATO, the NSWP forces constitute a substantial proportion of total Warsaw Pact forces, and so would be likely to play an important combat role also. Alexiev and Johnson (1986) note an IISS calculation that 43 percent of the Warsaw Pact's in-place divisions in Northern and Central Europe are non-Soviet. Data provided by Kassing and Shishko indicate the following percentages of NSWP forces relative to total Warsaw Pact forces in place on the Central European front: air defense aircraft, 60 percent; tactical attack aircraft, 55 percent; ground divisions, 54 percent; ground forces manpower, 49 percent; tanks, 30 percent; and helicopters, 38 percent.¹²

¹¹For a discussion of Soviet interests in Eastern Europe, see, *inter alia*, A. Ross Johnson, *The Impact of Eastern Europe on Soviet Policy Toward Western Europe*, The RAND Corporation, R-3332-AF, March 1986. See also John C. Campbell, “Soviet Policy in Eastern Europe: An Overview,” in Sarah Meiklejohn Terry (ed.), *Soviet Policy in Eastern Europe*, New Haven: Yale University Press, 1984.

¹²David B. Kassing and Robert Shishko, “Warsaw Pact Cohesion and Conventional Deterrence,” internal RAND working paper. The total regular forces of the Warsaw Pact Northern Tier are about 46 percent larger than those of the Federal Republic of Germany. See IISS, *The Military Balance*, 1985–1986.

Data provided by Sadykiewicz¹³ suggest the importance of the NSWP forces for a short-warning attack on Western Europe. Of the 31 NSWP divisions in the GDR, Poland, and Czechoslovakia, 26 are at category 1 or 2 levels of readiness. Moreover, as Sadykiewicz notes, the numerical superiority required for high confidence in a surprise attack scenario cannot be achieved without the NSWP forces in the Northern Tier. There are 26 Soviet divisions deployed in the forward area in the Northern Tier, whereas NATO forces in the same region total 22 divisions. Even with the six GDR divisions and the seven Czech divisions deployed close to the Western frontier, the ratio becomes only 1.77:1. Only with addition of 13 Polish divisions does the ratio become 2.36:1; Sadykiewicz argues that "only in such conditions can Moscow count on strategic success by resorting to the 'short-warning attack' method."¹⁴ Whereas these figures do not provide necessary adjustments for equipment quality and other factors, the central point is valid: the NSWP forces have an important role to play in combined Warsaw Pact operations, particularly in terms of a surprise attack scenario. This significant combat role is reflected in attitudes expressed by NSWP officers: in the event of combat against NATO, their first echelon forces would serve as cannon fodder at the outset of hostilities.¹⁵

Even in longer mobilization periods, it is not only the forces of the NSWP that are integral to Soviet planning. East European territory is important as well for transportation, communications, logistics, and other crucial activities in the rear areas. Many of these activities are vulnerable to disruption (or poor performance) caused by relatively small hostile actions, and so the Soviets must guard against such acts or depend upon the NSWP forces themselves to do so.¹⁶ But as Atkeson¹⁷ has pointed out, the 26 Soviet divisions in Eastern Europe are stationed there in substantial part to maintain internal East European security. Atkeson notes that if such large forces are needed for that purpose during peacetime, wartime conditions likely would call, in the Soviet view, for a much greater Soviet presence. For the Soviets to provide this rear area security and conduct operations against NATO

¹³See Michael Sadykiewicz, *Organizing For Coalition Warfare: The Role of East European Warsaw Pact Forces in Soviet Military Planning*, The RAND Corporation, R-3559-RC (forthcoming).

¹⁴Sadykiewicz, fn 13, p. 33.

¹⁵See Alexiev and Johnson, fn 5, p. 45.

¹⁶For a detailed discussion of this NSWP role, see Michael Sadykiewicz, *Wartime Missions of the Polish Internal Front*, The RAND Corporation, N-2401-1-OSD, July 1986, especially pages 57 through 74.

¹⁷See Edward B. Atkeson, "The 'Fault Line' in the Warsaw Pact: Implications For NATO Strategy," *Orbis*, Spring 1986.

without substantial NSWP participation is not a realistic option, particularly since the NSWP forces would be needed "for their combat power [and] to insure that the NSWP nations are participants in the war effort and not potential noncombatants or threats to the Soviet rear."¹⁸ Thus, again, conditions force the Soviets to give the NSWP forces a considerable combat role.

It is unclear whether the growing difficulties in the Soviet economy will provide net incentives for even greater reliance upon NSWP forces in Soviet planning for a major war in Europe.¹⁹ The relative importance of prospective NSWP *reliability* may increase as a factor in Soviet thinking about the conventional balance in Europe as a result of these Soviet economic problems.²⁰ On the other hand, Soviet reliability concerns may combine with the growing significance of advanced technology in conventional operations, for which the NSWP forces may be less suited than Soviet forces, to reduce the importance of NSWP forces in Soviet planning.

EVIDENCE OF SOVIET CONCERNS ABOUT NSWP RELIABILITY

Notwithstanding the considerable role given the NSWP forces in Soviet operational planning for a possible conflict with NATO, it is no secret that the prospective reliability of the NSWP forces leaves much to be desired from the Soviet viewpoint. Indeed, a major reason that the forces-in-place scenario is important in planning for a possible future WP attack on NATO is precisely the unreliability of the NSWP allies: a lengthier mobilization period would allow more time for the (anti-Soviet) self-interest of the NSWP forces, governments, and populations to result in defections or inefficient fulfillment of or opposition to Soviet directives. Another reason is that a longer mobilization period would tend to reduce the relative numerical advantage of the Warsaw Pact over NATO. But the short-warning approach necessarily

¹⁸Atkeson, fn 17, p. 120.

¹⁹For a discussion of this point, see A. Ross Johnson, "The Warsaw Pact: Soviet Military Policy in Eastern Europe," in Sarah Meiklejohn Terry (ed.), *Soviet Policy in Eastern Europe*, New Haven: Yale University Press, 1984. Johnson concludes that operational, institutional, and socioeconomic factors will force the Soviets to reduce their reliance upon NSWP forces, despite the Soviet hope that this reliance might be increased.

²⁰"Reliability" is used here in the "external-offensive" sense defined by Herspring and Volgyes. See Dale R. Herspring and Ivan Volgyes, "Political Reliability in the Eastern European Warsaw Pact Armies," *Armed Forces and Society*, Winter 1980.

increases the relative role of the NSWP forces, and so can eliminate the reliability problem only partially at best.²¹

This lack of Soviet confidence is the result of both the clear history of political instability in Eastern Europe, and the divergent interests of the Soviets and their East European allies in terms of potential conflict with NATO. Evidence of Soviet concern is provided by the extensive system of control mechanisms and other arrangements employed by the Soviets as devices with which to increase the prospective reliability of the NSWP forces.

Herspring and Volgyes define "external-offensive" reliability as "the willingness of the military to support the regime in offensive campaigns against other countries."²² In the context of this study, it is the willingness of the NSWP militaries, governments, and populations to support a Soviet offensive campaign against NATO that is of interest. Herspring and Volgyes note that "The role of the conscript . . . assumes critical importance here." Since conscripts come from the population at large, "a population which perceives an offensive war involving Soviet interests, which are not in accord with their own, could present problems for the Soviets in combat operations."²³ The history of political upheaval in Eastern Europe, from the 1953 Berlin riots to the recent Solidarity episodes in Poland, cannot inspire great confidence on this score in the minds of the Soviets. Moreover, much of the political turmoil has taken place in the Northern Tier, the area in Eastern Europe of greatest strategic importance from the Soviet viewpoint.²⁴ And the Soviets cannot be encouraged by the history of military nonsupport for the NSWP regimes when they were called upon to suppress internal disturbances: in the seven cases cited by Herspring and Volgyes,²⁵ the NSWP militaries consistently refused to support the regimes. These seven cases exclude the suppression of civil demonstrations and the imposition of martial law in Poland in 1980-1981, in which case the Jaruzelski regime felt constrained to rely upon the internal security forces (in particular, the ZOMO) rather than the military for those internal security functions. Nor can the Soviets be encouraged by the demoralization and evident unhappiness in the East German and

²¹For a discussion of this point, see Sadykiewicz (forthcoming).

²²See Herspring and Volgyes, fn 20, p. 284.

²³*Ibid.*

²⁴Even during the current relatively "quiet" period, popular dissent clearly simmers just below the surface in the Northern Tier: there is evidence of ongoing popular support for Solidarity in Poland, a nonnegligible peace movement has arisen in the GDR, and intellectual dissent seemingly is widespread in Czechoslovakia, as exemplified by Charter 77.

²⁵Herspring and Volgyes, fn 20, p. 278.

Polish militaries in the wake of the 1968 invasion of Czechoslovakia.²⁶ Although neither internal security nor "defense of international socialism" functions are the same as offensive operations against NATO, the historical record must raise significant reliability concerns for the Soviets with respect to offensive operations.

It is reasonable to assume that this fundamental unreliability of the conscript-based NSWP armies results in part from the alien and coercive political and economic environment imposed upon Eastern Europe by the Soviets during the postwar period.²⁷ That socialism has resulted in lower national wealth than would have been the case otherwise seems incontrovertible.²⁸ From the viewpoint of the East European populations—and perhaps their leaderships as well—artificially low living standards are a manifestation of a larger reality: Soviet and East European interests differ sharply in many important ways, and nowhere is this clearer than with respect to a possible Warsaw Pact invasion of Western Europe. Unlike the Soviets, the NSWP has little to gain from even a successful invasion of Western Europe; indeed, a successful invasion plausibly might increase East European dependence upon the Soviets, and might exacerbate the long-run growth problems of the NSWP economies.²⁹ And the prospect of enormous death and destruction resulting from hostilities cannot be attractive, as evidenced by the East European unhappiness over Soviet stationing of intermediate-range missiles in Eastern Europe in the wake of the NATO INF deployment.³⁰

²⁶See A. Ross Johnson, R. W. Dean, and A. R. Alexiev, *East European Military Establishments: The Warsaw Pact Northern Tier*, New York: Crane, Russak & Co., 1982.

²⁷For a brief discussion of the incompatibility of the imposed and traditional political and economic systems in Eastern Europe, see Trond Gilberg and Jeffrey Simon, "Introduction," in Jeffrey Simon and Trond Gilberg (eds.), *Security Implications of Nationalism in Eastern Europe*, Boulder: Westview Press, 1986. See also Robert Sharlet, "Varieties of Dissent and Regularities of Repression in the European Communist States: An Overview," in Jane Leftwich Curry (ed.), *Dissent in Eastern Europe*, New York: Praeger, 1983.

²⁸See, e.g., Lincoln Gordon, "The Economic Crisis in Eastern Europe," in Simon and Gilberg, fn 27.

²⁹There are of course differences in the interests of, say, the NSWP leaderships and populations. It is plausible, for example, that a successful Warsaw Pact invasion of Western Europe would reduce the prospects for East European economic reform by reducing pressures resulting from the need for economic competitiveness. Reduced pressure for reform would be inconsistent with the economic interests of the NSWP populations, but perhaps consistent with the political interests of the NSWP leaderships.

³⁰For a discussion of this, see A. James McAdams, "Surviving the Missiles: The GDR and the Future of Inter-German Relations," *Orbis*, Summer 1983. See also Ronald D. Asmus, "The Dialectics of Détente and Discord: The Moscow-East Berlin-Bonn Triangle," *Orbis*, Winter 1985.

Soviet recognition of the NSWP reliability problem is reflected by the control mechanisms and other arrangements employed by the Soviets in an effort to reduce or circumvent the problem. In brief, these control mechanisms can be divided into political, organizational, and operational categories.³¹ At the political level, the Warsaw Pact itself is an institution that provides political legitimacy—or at least a rationalization—for Soviet control of NSWP military activities. The Warsaw Pact administrative/political structure is designed to fragment NSWP national command over NSWP forces, thus at least helping to increase the availability, if not the reliability, of the NSWP forces.³² Moreover, conscripts (and officers) are subjected to intensive political indoctrination emphasizing the compatibility of nationalism and “socialist patriotism.” Close coordination of political education by the Soviet Main Political Administration (MPA) and those of each of the NSWP militaries results in common political education themes designed to further Soviet reliability goals: loyalty to the Party and State hierarchies, the defense of international socialism, and class hatred of the “imperialists.”³³ Whether or not such “education” is effective, that it is undertaken on a large-scale basis suggests the magnitude of Soviet concerns.

At the organizational level, those components of the NSWP militaries assigned to the Warsaw Pact Combined Armed Forces (CAF) are detached from control of their own national defense ministries and are subordinated instead to Soviet armies, fronts, or theaters of military operations (TVDs). During wartime, the NSWP forces come under the operational control of the Soviet High Command through intermediate theater commands (TVDs).³⁴ At the outset of military operations, communications are set up around the Soviet Command; NSWP officers are part of the CAF command, so that they are separated from the NSWP political authorities. Thus, the NSWP officers act essentially as channels for Soviet directives to the NSWP forces. Implementation

³¹This discussion is intended only to support the premise that the Soviets have important reliability concerns with respect to the NSWP forces, as reflected by the control mechanisms employed. For fuller discussions of the means by which the Soviets hope to enhance the reliability of their NSWP allies, see e.g., Daniel Nelson (ed.), *Soviet Allies: The Warsaw Pact and the Issue of Reliability*, Boulder: Westview, 1984; Sadykiewicz, R-3559-RC; and Michael Sadykiewicz, *The Warsaw Pact Command Structure in Peace and War*, The RAND Corporation, R-3558-RC (forthcoming).

³²See Gilberg and Simon, fn 27.

³³See Christopher Jones, “The Political Administrations of the Warsaw Pact and the Reliability of the East-Bloc Armed Forces,” in Nelson, fn 31.

³⁴See Michael Sadykiewicz, *Soviet-Warsaw Pact Western Theater of Military Operations: Organization and Missions*, The RAND Corporation, N-2596-AF, August 1987. See also John J. Yurechko, “Command and Control for Coalitional Warfare: The Soviet Approach,” *Signal*, December 1985.

of the orders is monitored by Soviet officers stationed in the NSWP forces down to the division level. Moreover, there are in war no operational functions for the non-Soviet members of the Warsaw Pact High Command; all key posts are held by Soviet generals.

At the operational level, various arrangements are employed by the Soviets in an effort to enhance NSWP reliability. Groups of Soviet Forces (GSFs) are stationed in the Northern Tier and Hungary in part out of reliability concerns.³⁵ The Warsaw Pact common readiness system is designed so that mobilization takes place en masse rather than as a result of decisions in each of the separate countries.³⁶ Short-warning plans may be initiated to reduce the time available for defections. Most important, the Soviets consider the reliability of each of the NSWP forces against various nationalities of opposing forces, and may structure the fronts so that NSWP units are "sandwiched" between Soviet forces, as a means of reducing the ability of the NSWP units to opt out of operations.³⁷ National fronts are unlikely to be used in wartime, because that would increase the difficulty of Soviet political control greatly. Sadykiewicz notes that the sandwiching of national units, from a purely military standpoint, "is nonsensical," making for "great difficulties in interoperability, in uninterrupted logistics, supply, reinforcement, interaction, command and control, etc."³⁸ That the Soviets may have opted to accept such problems in military operations suggests a deep concern with the potential problem of NSWP reliability.

WESTERN ECONOMIC TIES AND SOVIET PERCEPTIONS OF NSWP RELIABILITY

The clear Soviet concerns about the *military* reliability of the NSWP forces result in substantial part from the hard evidence of *political* unreliability among the East Europeans, itself the product of deep and long-term differences in the political interests of the Soviet Union and its Warsaw Pact allies. Obviously, Soviet uncertainty about the reliability of the NSWP strengthens deterrence of a Warsaw Pact inva-

³⁵See A. Ross Johnson, *The Warsaw Pact: Soviet Military Policy in Eastern Europe*, The RAND Corporation, P-6583, July 1981. Note that no Soviet forces were stationed in Czechoslovakia before the 1968 invasion; thereafter, five Soviet divisions were stationed in Czechoslovakia permanently.

³⁶See Yurechko, fn 34.

³⁷See Sadykiewicz, fn 13, and Herspring and Volgyes, fn 20.

³⁸Sadykiewicz, fn 16, p. 88.

sion of Western Europe.³⁹ Moreover, Soviet economic policy in Eastern Europe during the entire postwar period has been influenced heavily by Soviet perceptions of the effect upon the political reliability of the NSWP of substantial increases in economic ties between Eastern Europe and the West. In short, economic ties may exacerbate Soviet concerns about political unreliability, which may foster military unreliability in turn.

The Soviets have mixed incentives with respect to NSWP trade with the West. However, there is substantial evidence indicating that an explicit Soviet concern is the relationship among NSWP trade with the West, possible NSWP economic "dependence," and NSWP political reliability.⁴⁰ Soviet economic policy in Eastern Europe—in particular, the peculiar trading arrangements employed within the Council for Mutual Economic Assistance—are structured to further the Soviet policy goal of reduced East European trade with the West below levels that otherwise would be likely to prevail. These trading arrangements provide substantial (although declining in recent years) implicit subsidies to the East Europeans. What is interesting about the subsidies is not their magnitude *per se*, but the form in which the subsidies are provided. Instead of simply providing resources which the East Europeans could use for whatever purposes thought best, the subsidies are analogous to a system of in-kind matching grants, in which acquisition of the subsidies is dependent upon continued trade with the Soviets. Any sizable shift in trade patterns away from the Soviets would carry a penalty in the form of reduced subsidies received. If subsidization *per se* were the Soviet goal—say, for improvement in NSWP living standards and political stability—equal benefits for the East Europeans could be provided at a lower total cost to the Soviets through the use of direct pecuniary transfers; or, equivalently, the same cost to the Soviets would provide greater benefits to the East Europeans. That the Soviets have chosen the more costly tool of in-kind subsidies provides strong evidence that a major goal of the system is limitation of East European economic ties outside CMEA, that is, with the West.⁴¹

Further evidence of Soviet worries about enhanced East European trade with the West is provided by the nature of the recent Science and Technology Agreement adopted by CMEA. Deteriorating supply conditions for Soviet fuels and raw materials, coupled with the Soviets'

³⁹For a discussion of the relationship between uncertainty and deterrence, see John Mearsheimer, *Conventional Deterrence*, Ithaca: Cornell University Press, 1983.

⁴⁰The author has done previous work illustrating these Soviet interests in the larger context of Soviet economic policy in Eastern Europe.

⁴¹See fn. 30.

own economic problems, have led to a reduced willingness on the part of the Soviets to provide subsidies to their East European partners. The East Europeans recognize that greater efficiency in resource use is necessary for improved economic growth, but that would require substantial reliance upon market mechanisms, with all of its political dangers, or increased access to Western technology, trade relations, and general economic interaction. That prospect carries profound worries for the Soviets in terms of greater East European trade with the West. The new Science and Technology Agreement is designed to avoid realization of those Soviet fears through a concerted effort to develop the technology necessary for greater efficiency without extensive use of markets or greatly enhanced Western trade relations with Eastern Europe.

From the Soviet viewpoint, greater economic interaction between Eastern Europe and the West, particularly as a substitute for current trade patterns, is likely to lead in the direction of greater economic and political independence for Eastern Europe, thus exacerbating the reliability concerns already present. Moreover, from the Soviet viewpoint, it is reasonable to fear that such expanded trade might tend over time to corrode the command economy and thus the political system. Although it is difficult to quantify the Soviet perception of the relation between reliability and NSWP/Western trade, the Soviets have borne substantial costs—in the form of in-kind trade subsidies—in an effort to divert NSWP trade patterns away from the West. This relationship between East European/Western trade and Soviet reliability concerns suggests that Western economic policy toward Eastern Europe can be an important tool with which to increase Soviet uneasiness and thus strengthen deterrence of a possible Soviet invasion of Western Europe.

Moreover, East European incentives for expanded economic interaction with the West may be particularly strong now. Declining supplies of raw materials and fuels from the Soviet Union are exacerbating the ability of Eastern Europe to manage its hard currency debt. The need to increase the efficiency of resource use ("intensification") raises the political dilemmas inherent in substitution of markets for centralized resource allocation. The increased consumption needed for internal political stability reduces the investment available for long-term external competitiveness. In addition, the reduced investment accepted during the crisis years of the late 1970s and early 1980s will lead to reduced competitiveness in world markets precisely during a time of rapid technological advance in the West. These conditions exist during a period of declining willingness on the part of the Soviets to subsidize the East Europeans, in substantial part because of their own serious economic problems. In addition, competition from the developing

world is more intense, and the hard experience of recent years has reduced the willingness of Western capital markets to extend credit. In short, the East Europeans must find ways to increase consumption, investment, and efficiency simultaneously, in the face of declining resource supplies and without the extensive use of markets that would bring a Soviet veto and that, in any case, might be inconsistent with the political interests of the NSWP leaderships.⁴²

The economic interests of the NSWP governments are inconsistent with the desire of the Soviets to ensure NSWP reliability. This clash of interests provides the West with possible openings for economic policies designed to worry the Soviets. Moreover, the Soviets are interested not only in NSWP reliability, but also in NSWP political stability and in a reduction of the NSWP drain on Soviet resources. These inconsistencies in Soviet interests may provide the NSWP leaderships with additional room for maneuver in terms of enhanced trade with the West.

As noted above, the links between expanded Eastern Europe trade ties to the West and Soviet reliability perceptions are qualitative and, except directionally, murky. Moreover, the Soviets already harbor serious doubts about East European reliability; the marginal effect of new trade expansion is difficult to discern with any precision. Sections IV through VII below suggest specific areas in which opportunities for enhanced trade ties are both important and likely to serve the interests of both the East Europeans and the West. They are examples only, and are intended to illustrate the kinds of initiatives that could be useful. Particular sectors are likely to have a greater effect on reliability than trade in other areas. The argument is that Soviet behavior suggests a reliability concern associated with increased East European trade with the West *per se*, not that trade in the examples are only part of a broader range of possibilities beyond the scope of this study. A trade expansion process must begin somewhere; it is reasonable to expect that growing trade in some areas might engender expanding ties in related areas as well.

⁴²For a useful summary of the current economic problems in Eastern Europe, see Lincoln Gordon, "The Economic Crisis in Eastern Europe," in Simon and Gilberg, fn 27.

III. SOME POLICY GUIDELINES

Our goals must be modest because large subsidies for promotion of NSWP trade with the West are unlikely to be available, in part because the links between such expanded ties and strengthened deterrence are subtle and the deterrence benefits unquantifiable. Nonetheless, the Soviets fear expansion of NSWP economic interaction with the West, partially because of perceived adverse effects upon NSWP political/military reliability. Improved living standards in the NSWP are not consistent with Soviet interests if they result from extensive use of markets and lead to greater independence internally from Party fiat and externally from Soviet hegemony. Increased NSWP economic interaction with the West can lead plausibly only toward greater independence from the Soviets for Eastern Europe. Moreover, greater economic ties with the West can serve the economic interests of the NSWP populations, and thus perhaps the political interests of the NSWP regimes.

Pure subsidization would not be an appropriate policy—it would strengthen the NSWP regimes and provide resources fungible into military activities without providing a *quid pro quo* in terms of U.S./NATO interests.⁴³ Instead, subsidies must be designed to induce behavior on the part of the NSWP regimes that increases reliability concerns in the minds of the Soviets. Moreover, the subsidies must serve some interest of the NSWP leaderships, or the attempt to expand economic ties will be resisted. Policies that smack of economic warfare should be avoided, as they are likely to exacerbate tensions within NATO.⁴⁴ More generally, initiatives toward Eastern Europe are likely to be viewed by various West European groups in terms of their peacetime effects in Eastern Europe and perhaps in terms of their effects upon Soviet interests. Increased trade with Eastern Europe as a

⁴³Moreover, pure subsidies could be captured by the Soviets simply through offsetting reductions in their subsidies to the NSWP. However, this would encourage a relative substitution of Western trade ties for Soviet ones. Pure subsidization (i.e., wealth transfers) of the NSWP economies could have a beneficial reliability effect if the subsidies resulted in greater popular admiration or support for the West, and thus a Soviet perception of reduced conscript willingness to engage in (offensive) military operations against NATO. The West probably can achieve the same effect by offering subsidies designed to induce greater NSWP/Western economic interaction.

⁴⁴For a discussion of the tension raised within NATO by the dispute over participation in the Yamal pipeline project, see Klaus Bockslaff, "The Pipeline Affair of 1981-82: A Case History," 1984 *German Yearbook of International Law*, Universitaet Kiel, Institut für Internationales Recht, Duncker und Humblot GmbH, West Germany.

general policy goal is unlikely to generate much opposition in Western Europe, although specific policy options may produce political tension among competing interest groups.⁴⁵ In general, economic policies intended to exacerbate Soviet worries about NSWP reliability should be consistent with the following guidelines.

First, the policies should lead toward greater economic interaction between the NSWP and the West—and (relative) substitution of such ties for dependence upon the Soviets—because it is precisely such general ties that worry the Soviets. The Soviets have attempted to create dependence upon themselves and a reduction in East European trade relations with the West. NATO policy should attempt to reverse or slow those trends by tying important NSWP interests to Western suppliers and sources of expertise. It is reasonable to expect that such an outcome would increase the degree to which the economic orientation of the NSWP nations would shift relatively more “Westward.” In short, Western subsidies should be contingent on expanded trade with the West. The control system that the Soviets have established is designed to minimize NSWP unreliability. The Soviet economic policy with respect to CMEA trade persists, suggesting that the Soviets continue to perceive important links between trade patterns and prospective reliability. Thus, the presence of the control system does not obviate the prospective usefulness of the policies discussed in this paper.

Second, the policies should, at a minimum, not encourage or substitute for NSWP military expenditures, and ideally should induce substitution away from military spending. Subsidies for NSWP trade relations with the West provide resources fungible at least in principle into military budgets. However, if the subsidies are for, say, purchase of particular kinds of Western capital equipment, then it is possible that NSWP spending on such equipment actually might rise, if the NSWP demand for such equipment is relatively elastic. Even if not, Crane’s estimates of the determinants of East European military spending suggest that this problem may not be important.⁴⁶ Crane’s empirical findings suggest that while utilized national income—which would be augmented by subsidies for Western trade ties—is the most influential factor in the growth of East European military spending, the effect is less than proportional. In other words, a given percent change in utilized national income induces a smaller percent change in military

⁴⁵Indeed, as suggested by the Yamal pipeline case and by the Solidarity period in Poland, subsidization of trade with Eastern Europe is likely to prove more controversial in the United States; it is precisely the goal of this study to show that such subsidies would serve U.S. interests.

⁴⁶See Keith Crane, *Military Spending in Eastern Europe*, The RAND Corporation, R-3444-USDP, May 1987.

spending in Eastern Europe. Even if such subsidies amounted to, say, \$1 billion per year each for East Germany, Czechoslovakia, and Poland, the effect on military spending would be much less than 1 percent annually.⁴⁷ This estimate does not account for the possible substitution effects away from military spending that might be induced by subsidy programs designed to foster purchase of specific kinds of Western goods. If the East European economies can be viewed as consuming three kinds of goods—consumption, investment, and defense—and if consumption must be maintained because of the requirement for political stability, then it is possible that subsidies for “peaceful” investment may induce substitution away from military spending. In short, Western subsidies for expanded NSWP trade relations should be tied to specific patterns of NSWP spending.

Third, the policies should be designed to foster good will toward the West among the NSWP populations, and tie regime legitimacy to greater NSWP/West economic cooperation. Since the NSWP militaries are manned with conscripts, strengthened popular good will can be expected to raise reliability questions in the minds of the Soviets. This may be particularly true if the policies can reduce the credibility of Soviet arguments about a renewed (West) German threat. Therefore, the West should offer assistance designed to increase economic relations in areas that represent conspicuous failings of socialism, in which solutions are costly, and in which creation of popular perceptions of Western superiority and generosity is relatively straightforward. Moreover, such economic relations can be expected to reinforce the regimes’ claims of independence from the Soviets; when combined with solutions to visible problems, expanded Western ties may serve their political legitimacy objectives as well.

Fourth, the attempts to promote expanded trade ties must serve some interest of the NSWP regimes; if they do not, substantial progress is unlikely to be achieved. More generally, initiatives designed to further Western interests in Eastern Europe will meet with less resistance the greater the degree to which they serve the interests of the regimes. While some Western and NSWP regime interests are inconsistent, others are consistent; and some Soviet and NSWP regime interests are inconsistent. The initiatives discussed in this study attempt to incorporate recognition of these relationships. Thus, while spending for, say, Radio Free Europe clearly is useful, it is not emphasized here because a substantial increase probably would be viewed in a dim light by the NSWP regimes. Moreover, the policies

⁴⁷The CIA estimates 1986 dollar GNP in the GDR, Czechoslovakia, and Poland at \$187.5 billion, \$143.9 billion, and \$259.8 billion, respectively. See CIA, *Handbook of Economic Statistics*, 1987, p. 35.

discussed here are designed to blunt the trading goals of Soviet economic policy in Eastern Europe. Because, *ceteris paribus*, policies serving the interests of the NSWP regimes are preferred to those that do not, we must be willing to accept some possible strengthening of the repressive regimes in Eastern Europe (as was the case with Ceausescu in Romania) to further our deterrence aims.

Finally, the policies should attempt to induce greater economic reform and pluralism within the NSWP economies and societies. The failure of the Agricultural Fund in Poland suggests that the NSWP regimes are likely to resist Western subsidies for creation of independent interest groups, particularly if the magnitude of the subsidies is not large. Therefore, Western policies should, at a minimum, not discourage the creation and growth of such groups, and opportunities to include them, even if only informally, in new economic interactions should be seized.

The following sections discuss examples of areas presenting opportunities for expansion of NSWP/Western economic relations.

IV. POLLUTION CONTROL EQUIPMENT

Environmental pollution, particularly of air and water resources, has become a serious problem in Eastern Europe. This reality is sharply at odds with socialist ideology, which maintains that environmental pollution is the result of the profit motive under capitalism.⁴⁸ Political and economic incentives for pollution control in Eastern Europe are weak, as the drive to fulfill production plans and to keep up with the West economically tends to reduce the priority of resource allocation for environmental protection. Accordingly, East European enforcement of environmental regulations is lax, and the fines imposed upon enterprises for violations typically are smaller than the cost of compliance.⁴⁹ Nonetheless, the problems have become sufficiently severe that complaints and warnings in the official East European media now are prominent,⁵⁰ and the regimes have found it necessary to create official environmental groups in an attempt to preempt potential popular political opposition on this issue.⁵¹ The success of the Greens in the FRG has reinforced this political incentive in Eastern Europe.⁵² Puddington notes that the East European authorities view Western environmentalists with considerable wariness, a fact that indicates "the disruptive

⁴⁸For a detailed discussion of the ideological relationship between environmental degradation and Marxism-Leninism, see Joan DeBardeleben, *The Environment and Marxism-Leninism: The Soviet and East German Experience*, Boulder: Westview, 1985. Czech ideologists blame ecological problems on "nonsocialist individuals still surviving in the country," and argue that "the solution for ecological problems depends on the success of ideological work." See Radio Free Europe (RFE) Situation Report No. 8 (Czechoslovakia), May 13, 1985.

⁴⁹See, for example, Christine Zvosec, "Environmental Deterioration in Eastern Europe," *Survey*, Winter 1984.

⁵⁰See for example, Anna Zimaniova, "More Seriousness and Responsibility in Practice," *Bratislava Pravda*, November 20, 1986. Puddington notes that the official media have presented a theme of extreme seriousness in the environmental area, presumably as a way of warning the public that substantial improvement is years away. See Arch Puddington, "East Bloc Ecology," *The American Spectator*, March 1986.

⁵¹An example of popular support for environmental protection was the Polish Ecology Club, which grew to over 20,000 members during the Solidarity period preceding the imposition of martial law in December 1981. In a Czech public opinion survey, over 80 percent of the respondents believed that in Czechoslovakia pollution control was "grossly inefficient" or that "too little was being done" to protect the environment. See the RFE Situation Report No. 32 (Czechoslovakia), September 13, 1973.

⁵²See Fred Singleton, "Eastern Europe: Do the Greens Threaten the Reds?" *The World Today*, August-September 1986.

potential of ecological issues, at least as the Communist ruling elite sees things."⁵³

The basic problem is that little consideration for environmental protection is evident in the East European central plans, as such protection, at least in the short run, is viewed as inconsistent with economic growth.⁵⁴ The low priority given environmental protection, along with the poor financial condition of the East European governments, results in small budgetary allocations for effluent reduction. Whereas the cost of pollution control mandated by the U.S. Clean Air and Clean Water Acts was about 1 percent of GNP in 1981,⁵⁵ Czech expenditure on environmental protection in 1984 was about 0.4 percent of domestic net material product (which is smaller than GNP because of the exclusion of services).⁵⁶ Polish spending was about 0.37 percent of "gross national income," whereas spending in the GDR was about DM 7 million for a comprehensive environmental program between 1971 and 1975. The subsequent five-year plans, however, apparently have not included separate environmental programs.⁵⁷ And it is clear that organized political pressure for environmental protection is far more difficult in Eastern Europe than in the West, for obvious reasons.

Notwithstanding this past record of relative neglect, there is evidence of official recognition and concern about the growing severity of the problem. The East European governments may be receptive to Western initiatives in this area, particularly if they are accompanied by Western willingness to bear part of the costs.

Hard data on the extent and effects of environmental pollution are not gathered in a systematic manner in Eastern Europe,⁵⁸ but the

⁵³See Puddington, fn 50, p. 4.

⁵⁴However, there seems to be a growing recognition within the East European governments that severe pollution problems can impose significant explicit short-run economic costs. Examples are worker absenteeism and general health problems among the population, and the cost of cleaning water needed in various industrial processes. See RFE Situation Report No. 9 (Czechoslovakia), "Approaching the 'Ecological Barrier,'" June 18, 1986. See also the report of the Department of Chemistry and Environmental Engineering, Polish Academy of Sciences, *Chemical Pollution of the Environment in Poland*, translated for the U.S. Environmental Protection Agency by SCITRAN, 1984, pp. 34-35.

⁵⁵See the U.S. Environmental Protection Agency, *The Cost of Clean Air and Water*, Report to Congress, 1984. Note that this estimate excludes costs due to other federal laws and regulations, and excludes those due to state and local environmental regulation and voluntary action by producers of effluents.

⁵⁶See RFE Situation Report No. 8 (Czechoslovakia), May 13, 1985.

⁵⁷See the report of the Polish Academy of Sciences, fn 54, p. 24. See also B. V. Flow, RFE Background Report No. 164 (Eastern Europe), "The Environmental Crisis in the GDR," September 3, 1984.

⁵⁸The Polish government is in the process of creating a national monitoring system on the levels and effects of effluent levels. Kramer notes that the East European regimes

evidence that is available, while largely qualitative, indicates that air and water pollution problems are severe in Czechoslovakia, the GDR, and Poland. Czechoslovakia suffers from intense air pollution problems, resulting primarily from heavy use of high-sulfur domestic coal in industrial processes. Reliance on brown coal has increased as the supplies of Soviet oil have been reduced. For example, of the 73.5 billion kWh of electricity generated in 1981, 64.1 billion kWh were produced by generating stations burning high-sulfur coal.⁵⁹ Accordingly, sulfur dioxide emissions in Czechoslovakia are among the world's highest, and are roughly equal to those of the much larger FRG. The air pollution problem is particularly severe in the heavily industrialized areas of North Bohemia, and is growing worse in the Czech lands generally. In the early 1960s, annual sulfur dioxide emissions were about 2.5 million tons, and grew to almost 3 million tons by 1980. Kramer notes that emissions of all gaseous effluents grew by almost 60 percent between 1965 and 1978.⁶⁰ While not as severe as in the Czech lands, increasing sulfur dioxide emissions constitute a problem in parts of Slovakia.⁶¹

Various accounts in the Czech press indicate the magnitude of the costs imposed by the air pollution levels. Aside from increased corrosion of buildings and other structures, about 12 percent of arable land (some 1.2 million acres) and 1 million acres of timber have been damaged or destroyed by air pollution. Substantial human migration from North Bohemia has resulted from the air pollution levels there, and approximately one-third of the population of the Czech lands is exposed permanently to air quality sufficiently poor as to constitute a serious health threat.⁶²

Water pollution problems in Czechoslovakia are equally severe. Official data indicate that of 3.06 billion cubic meters of waste water produced by industrial and agricultural processes in 1981, only 0.94 billion cubic meters were subjected to waste treatment.⁶³ Official data show that some 70 percent of Czechoslovakia's waterways are "highly polluted," over a third of them no longer supply water fit for human consumption, and 5 percent do not support living organisms. As of

generally have been reluctant to publish data on environmental degradation, since such information could prove embarrassing politically. See John M. Kramer, "The Environmental Crisis in Eastern Europe: The Price for Progress," *Slavic Review*, Summer 1983.

⁵⁹See Frank Pohl, *Environmental Deterioration in Czechoslovakia*, RFE Background Report No. 95 (Czechoslovakia), May 6, 1983.

⁶⁰See Kramer, fn 58, p. 206.

⁶¹See "Pollution in Slovakia," RFE Situation Report No. 2 (Czechoslovakia), February 6, 1986.

⁶²See Joint Publications Research Service (JPRS), No. 79122, October 2, 1981, for a discussion of the costs caused by air pollution in Czechoslovakia.

⁶³See RFE Situation Report No. 22 (Czechoslovakia), December 10, 1982.

1979, about a third of the major waterways were too polluted even for industrial use. Nationally, some 4340 miles out of 15,500 miles of major rivers have been classified officially as incapable of sustaining fish or as sustaining fish not fit for human consumption.⁶⁴ One government report notes that shortages of clean water have led to stringent limits on "the long range development of the Czech economy."⁶⁵ There is wide agreement that a major source of the problem is the inadequate level of treatment for waste water from industrial uses and sewers. Agricultural uses are important as well, although industrial water use is roughly ten times that in agriculture.⁶⁶

There is evidence of increasing official concern about environmental problems in Czechoslovakia, and of increasing official willingness to engage in international cooperation. Open criticism of the lack of systematic data on the state of environmental quality has been growing.⁶⁷ More important, the federal government approved in 1985 a plan that deals comprehensively at the central government level with environmental protection.⁶⁸ The steps put forth have been incorporated into the eighth five-year plan (1986-1990) and into longer term plans to the year 2000. The plan recognizes the looming limitations on economic growth caused by severe environmental problems, and emphasizes the installation of air and water purification systems, some of which are to be imported. The cost of the program is estimated at 100 billion crowns (approximately \$14.4 billion at official exchange rates) through the year 2000, with 17 billion crowns (approximately \$2.4 billion at official exchange rates) to be spent during the current five-year plan.

The financial burden is a main limitation on Czech cooperation with the West on environmental problems. On October 4, 1986, a government spokesman commented that there are "no objections to taking more Western credit for achieving the government's plan to do more about environmental problems."⁶⁹ A West German paper reports that "Czechoslovakia, the GDR, and Poland are ready to accept financing from the All-European Fund in order to take measures aimed at reduc-

⁶⁴See Pohl, fn 59, p. 6.

⁶⁵See JPRS, No. 73745, June 22, 1979.

⁶⁶See RFE, fn 63, p. 12.

⁶⁷See RFE Situation Report No. 14 (Czechoslovakia), October 22, 1986. The author of this SR notes that the mere publication of such criticism "is telling, particularly since the state has called upon Czechoslovak industry and agriculture to increase the efficiency of production while reducing environmental hazards."

⁶⁸See RFE Situation Report No. 9 (Czechoslovakia), June 18, 1986.

⁶⁹As reported in RFE SR No. 14, fn 67, p. 24.

ing air pollution."⁷⁰ In short, the evidence suggests that significant cooperation between Czechoslovakia and the West in the environmental area is a realistic goal.

The air pollution problem in the GDR may exceed that of Czechoslovakia. As with Czechoslovakia and Poland, the GDR has adjusted to higher prices and reduced supplies of Soviet oil through substitution of increasing quantities of domestic brown coal for industrial use. Production of brown coal, at 258 million tons in 1980, is planned to be 300 million tons in 1990. As almost no desulfurization equipment has been installed in GDR factories, the GDR has the highest rate of sulfur dioxide emissions in Europe, at well over 30 tons per square kilometer per year, as compared with the FRG at 14.5 tons. Emissions of sulfur dioxide grew between 1980 and 1985 from 4.5 million tons to 5 million tons.⁷¹ Total sulfur dioxide emissions by the FRG in 1980 were 3 million tons, despite its far larger population and GNP. The intense air pollution has resulted in significant forest deterioration along the border with the FRG and Czechoslovakia; over 432,000 acres of forest have died in the Erzgebirge mountains during the past 15 years.

The basic problem is familiar: the energy policy of the GDR is inconsistent with protection of environmental quality, and political incentives for economic growth are strong, as the ideological appeal of socialism no longer furthers the political legitimacy goals of the regime (if ever it did). Increased production systematically has higher priority than protection of environmental quality.

Nonetheless, there are clear signs of increasing official concern over environmental degradation in the GDR. The regime established in 1980 the Society for Nature and the Environment in an effort to defuse popular criticism of the growing pollution problem. This popular criticism is led by the East German Evangelical Church, which operates its own research institute for environmental research in Wittenburg. More important, the government has participated in several international environmental conferences, including the 1985 Helsinki conference sponsored by the United Nations Economic Commission; this conference gave rise to plans for East-West meetings on environmental issues, to be held on a regular basis. Moreover, the GDR joined 18 other nations agreeing to reduce sulfur dioxide emissions by 30 percent between 1980 and 1993; this would bring GDR sulfur dioxide emission levels down to about 3 million tons by 1993. As the GDR is heavily

⁷⁰*Ibid.*

⁷¹See B. V. Flow, fn 57, p. 4. See also "East Germany: New Developments in Environmental Protection," RFE Background Report No. 81 (GDR), August 16, 1985.

dependent upon domestic brown coal for fuel, this commitment, to whatever degree it is fulfilled, may suggest real concern on the part of the government.⁷²

Another indication of official concern is the evident ideological shift in the GDR with respect to pollution problems: it is no longer argued that environmental problems in a socialist state are "objectively impossible."⁷³ Although this shift probably is due in part to the growing severity of the problem, it allows also for international cooperation without conflict with official dogma. And such international cooperation clearly is necessary for the GDR because of the massive nature of the problem. Resources are limited, and the financial and technological resources required for substantial progress are unlikely to be available. Hence the participation of the GDR at Helsinki, and the great interest of the GDR in bilateral cooperation with the FRG and other neighbors in the environmental area. There has been a series of recent negotiations with neighbors on joint efforts to deal with growing environmental problems. The 1983 agreement with the FRG on cleanup of the Roeden River is an example; the FRG will contribute a total of DM 18 million toward construction of a sewage plant in the GDR.

In short, there are good reasons to believe that environmental protection, particularly with respect to reduction of sulfur dioxide emissions, can be a fruitful area in which to increase economic ties between the GDR and the West.

Air pollution levels in Poland are among the highest in Eastern Europe. The industrial plants accounting for over two-thirds of industrial emissions are located in 19 urban areas which comprise about 18 percent of Poland's land area but about half of its population. Accordingly, air pollution levels are particularly high in the leading industrial areas: Upper Silesia, the Legnitsa-Glog copper district, the Gdansk Bay region, and the Cracow region suffer from an "ecological disaster."⁷⁴ As with Czechoslovakia and the GDR, economic pressures have induced substitution of coal for oil and of brown coal for low sulfur coal, which is being exported in increasing quantities to hard currency markets. Thus, it is not surprising that the fuels and power industries are responsible for two-thirds of all industrial sulfur dioxide emissions, which in turn account for two-thirds of all such emissions in Poland.

⁷²Note that Czechoslovakia has committed itself to this reduction as well, but that Poland, Hungary, and Romania have not.

⁷³See RFE Background Report No. 81, fn 71, p. 3.

⁷⁴See the report of the Polish Academy of Sciences, fn 54, p. 4.

Moreover, environmental protection has received low priority. A survey indicates that of the 1066 industrial plants that emit some two-thirds of all atmospheric effluents, complete emission standards have been established for only 530. No standards have been set for 304 plants, and Kramer notes that treatment of industrial atmospheric emissions is "negligible."⁷⁵ Fulfillment of the production plans has enjoyed higher priority in Poland, particularly given the large hard currency debt, but there is a growing recognition on the part of the authorities of the importance of the problem. A national monitoring system for pollution sources and levels is being created, and the Polish Academy of Sciences was authorized to conduct the survey noted above. Numerous press accounts have dealt with the economic costs of the air pollution, including contamination of food, corrosion of buildings and structures, and other adverse effects. Moreover, public concern about environmental issues is growing, as evidenced by the support for the Polish Ecology Club during the Solidarity period, and by the pressure for closure of the Skawina Aluminum Works.⁷⁶

About a third of Poland's main waterways are so polluted they are unusable. The problem is caused by both industrial effluents and by untreated or insufficiently treated sewage. The Polish Academy of Sciences study notes that in 1981 4.7 billion cubic meters of sewage was produced in Poland, of which 44 percent received no treatment and another 36 percent was treated only for undissolved contaminants. More than half of the cities—including Warsaw and Lodz—do not have sewage treatment plants. Of the 3650 major industrial plants producing significant amounts of water effluents, some two-thirds dispose of wastes without purification.

These conditions have resulted in deteriorating water quality in Poland. Between 1967 and 1977, the percentage of total river lengths classified in the highest quality category fell from 33 percent to 9.6 percent, while the lowest quality category rose from 22.8 percent to 33.1 percent. The Polish Academy of Sciences study offers a conservative estimate of the cost of water pollution in Poland at 400 billion zloty (approximately \$2.5 billion at official exchange rates) annually. The Polish government announced a few years ago a program to build and upgrade sewage treatment facilities in the Vistula River Basin, which was envisioned to cost 225 billion zloty (approximately \$1.4 billion at official exchange rates) by 1995. Although the program has been delayed considerably, such steps by the government indicate a growing

⁷⁵See Kramer, fn 58, p. 208.

⁷⁶See "Polish Ecology Club Risks Government Ire by Battling Pollution," *Wall Street Journal*, July 24, 1981.

concern with environmental problems, and thus an area of potential economic relations with the West.

What the East Europeans need for environmental protection essentially is capital equipment and expertise in terms of installation and operation. This is particularly the case for industrial desulfurization equipment for gaseous effluents, industrial water purification equipment and systems, and sewage treatment facilities. The West has many years of experience in the production, installation, and operation of such systems, and Western subsidies for East European use of such equipment and expertise would increase NSWP economic interaction with the West, the first goal of the policies under consideration in this study. Since the subsidies would be tied to utilization of the Western systems, they would not amount to pure subsidization of the NSWP economies, particularly if total NSWP spending on the equipment can be constrained by agreement to be maintained net of the Western subsidies. If this can be arranged, then it is unlikely that the subsidies would result in higher NSWP military spending. As a result of growing popular concern with environmental issues in Eastern Europe, the policies can be expected to foster popular good will toward the West; moreover, improved environmental quality is likely to be consistent with enhanced legitimacy for the regimes, thus tying an important local political interest to growing economic ties with the West. Finally, cooperation with the NATO allies in general and the FRG in particular can be expected to reduce the credibility of Soviet arguments about the threat from the West. In short, it seems that a policy of subsidizing East European use of Western pollution control technology is likely to be consistent with our deterrence goals.

GNP in Czechoslovakia, the GDR, and Poland in 1986 is estimated by the CIA at about \$591.2 billion.⁷⁷ If a subsidy program raises total environmental protection spending in the Northern Tier by, say, 0.5 percent of GNP, that would amount to some \$3 billion per year. If all of this spending is for capital equipment (an unrealistic but conservative assumption), a program of, say, subsidizing all of the interest on the investments would cost about \$300 million per year, as a crude approximation. It is difficult to know the size of the subsidy needed to induce the East Europeans to participate, particularly since there are likely to be short-run production disruptions, but the central point is that this kind of subsidy program is likely to fit within the order-of-magnitude budget constraint postulated above.

⁷⁷CIA, fn 47.

V. NUCLEAR POWER SAFETY EQUIPMENT

Aside from generous hard coal deposits in Poland and brown coal deposits in Czechoslovakia and the GDR, the Northern Tier (and Eastern Europe generally) is endowed poorly with energy resources. This has led to the general trade pattern within the CMEA: Soviet fuels and raw materials are exported to Eastern Europe in exchange for agricultural and manufactured products. The Soviets systematically have provided implicit subsidies for both sides of this general trade pattern in an effort to reduce East European trade with the West below levels that would prevail otherwise.⁷⁸ However, the general slowdown in Soviet economic growth⁷⁹ has combined with higher costs and reduced geographic ease in Soviet energy production⁸⁰ to reduce Soviet willingness to provide implicit trade subsidies to the East Europeans. Moreover, the sharp decline in the world price of oil may induce the Soviets to increase oil sales in hard currency markets as a means of meeting earnings targets for hard currency.⁸¹ The Soviets reduced oil deliveries to the East Europeans by about 10 percent beginning in 1982, and have announced a more hardened position on oil deliveries, oil prices, and acceptance of poor-quality East European machinery and other goods as the *quid pro quo* in CMEA transactions.⁸²

⁷⁸See fn 40.

⁷⁹For a discussion of recent Soviet economic growth, see Gregory Grossman and Ronald L. Solberg, *The Soviet Union's Hard Currency Balance of Payments and Creditworthiness in 1985*, The RAND Corporation, R-2956-USDP, April 1983. See also the Joint Economic Committee, *Allocation of Resources in the Soviet Union and China 1985*, Part II, pp. 69-87.

⁸⁰Production decline rates have accelerated in the older and more accessible Soviet oil fields, whereas newer known resources exist only in less accessible and more distant regions that simultaneously are more costly for exploration, development, and production activities. See the *USSR Energy Atlas*, Central Intelligence Agency, January 1985.

⁸¹The *PlanEcon Report*, January 21, 1987, notes that whereas net energy exports by the Soviet Union in 1986 rose 6.6 percent, net exports to the socialist countries rose 3.3 percent and net exports to nonsocialist countries increased about 11.5 percent. This does not necessarily suggest a "backward bending" supply of Soviet oil; low expectations for future prices can induce the same kind of supply behavior.

⁸²The joint statement of the June 1984 CMEA Economic Summit, "Statement on the Guidelines for the Further Development and Deepening of the CMEA Member States' Economic, Scientific, and Technical Cooperation," stated that

... CMEA member states will ... supply the Soviet Union with the products it needs, notably foodstuffs and manufactured consumer goods, some types of construction materials, machines and high-quality and world-class equipment.

In addition, the latest round of bilateral and multilateral agreements within CMEA appear to treat Soviet interests more favorably than did past arrangements.⁸³

The CMEA price for oil, calculated as a five-year moving average of world market prices, has been rising sharply as the official CMEA price moves toward the (now lower) world market price. Thus, for the East Europeans, the price advantage in oil purchases from the Soviets has diminished markedly, although an advantage still exists since the oil can be purchased with "soft" goods (or for "soft" transferable rubles). In short, from the viewpoint of the East Europeans, the supply of Soviet oil is becoming tighter and its price higher. A substantial shift toward oil purchases in hard currency markets is an unattractive option because debt retirement and other needs have reduced sharply the availability of hard currency for oil purchases. Moreover, the tighter supply environment vis-à-vis the Soviet Union is emerging at a time when economic conditions preclude large increases in oil purchases on international markets.

The East Europeans have responded to the new environment by emphasizing greater efficiency ("intensification") in the use of fuels and resources, and by shifting toward increased use of domestic energy resources.⁸⁴ Achievement of greater efficiency in energy use is a clear policy goal for the East Europeans, as their energy use per unit of output substantially exceeds that of comparable West European nations. Per unit of GNP, Polish energy consumption exceeded that of the FRG by almost 26 percent in 1983; for the GDR and Czechoslovakia, the figures were 35 percent and 36 percent, respectively.⁸⁵ Part of the blame for this higher use of energy lies with the economic system: the absence of a profit motive and of rational pricing reduces incentives for

⁸³See, for example, "A Chronology of Recent Soviet-Hungarian Trade Negotiations and Agreements," RFE Special Report No. 3 (Hungary), February 25, 1986.

⁸⁴In addition, joint development of Soviet gas resources is intended to yield some substitution of Soviet gas for Soviet oil in the East European energy consumption mix. The most important of the joint projects is the Progress pipeline which will transport gas from Yamburg in West Siberia to the Soviet-Czech border; the system is being financed jointly by the East Europeans in exchange for gas deliveries scheduled to begin in 1989. Current East European use of Soviet natural gas is about 34 billion cubic meters per year; the new project will add an additional 20-22 bcm per year.

⁸⁵Data on East European energy use and GNP can be found in PlanEcon, *Soviet and East European Energy Databank*, March 1986, and the CIA, *1985 Handbook of Economic Statistics*.

individuals and organizations to economize on the use of energy.⁸⁶ Thus, efforts to achieve improved efficiency in energy use to a large extent must be imposed from above, through aggregate investment policies. Accordingly, the greater efficiency is to be achieved in substantial part through the application of advanced (fuel-efficient) technology in industrial processes; that is an important objective of the recent CMEA Science and Technology Program ("Comprehensive Program for Scientific and Technical Progress of the CMEA Member Countries Through the Year 2000"), which is intended to achieve technological advance without the political dangers inherent in expanded use of markets or substantially increased trade with the West.

In addition to intensified efforts at coal production and extraction, particularly in the GDR, greater intended reliance upon domestic energy sources has yielded large nuclear energy programs in Eastern Europe. Table 1 lists present and planned nuclear electrical generation as a proportion of total generation in Eastern Europe.

The central message of Table 1 is the substantial increase planned for nuclear power generation in Eastern Europe. Table 2 lists the nuclear units now operating, under construction, and planned in Eastern Europe.

Table 1
NUCLEAR GENERATION AS A PROPORTION OF
TOTAL GENERATION
(Percent)

Nation	1986	1990	2000
Bulgaria	32	44	60
Czechoslovakia	20	30	50
GDR	11	15	30
Hungary	25	na	40
Poland	0	9	40
Romania	0	18	na

SOURCE: John M. Kramer, "Chernobyl and Eastern Europe," *Problems of Communism*, November-December 1986.

⁸⁶Those are not of course the only reasons. The emphasis on heavy industry as opposed to services in the East European economies biases aggregate output toward production of goods that are inherently energy intensive. On the other hand, the East European economies do not have anything resembling the private transportation sectors in the West, nor do they have a comparable level of per capita consumption of electricity in households.

Table 2
EAST EUROPEAN INSTALLED AND PROJECTED NUCLEAR
GENERATION CAPACITY
 (Units/combined megawatts)

Nation/ Generating Station	Operating Units	Units Under Construction	Planned Units
Bulgaria			
Kozlodui	4/1760	1/1000	
Belene			4/4000
Czechoslovakia			
Jaslovce Bohunice	4/1760		
Dukovany	1/440	3/1320	
Mochovice		4/1760	
Temelin		4/4000	
GDR			
Bruno Lehschner	4/1760		
Rheinsberg	1/70		
Stendal			2/2000
Hungary			
Paks	3/1320	1/440	6/3760
Poland			
Zarnowiec		4/1760	
Warta			4/4000
Romania			
Cernavoda		5/3300	
Moldavia			4/4000
Transylvania			4/4000

SOURCE: *Petroleum Economist*, June 1986.

The East European nuclear construction and generation programs are ambitious. The Bulgarian program envisions growth in the percentage of electricity generated by nuclear units from about 30 percent in 1986 to 60 percent in the year 2000. Czech nuclear capacity is planned at over 9000 MW by the turn of the century, growing from 20 percent of total generation in 1986 to 30 percent in 1990 and 50 percent in 2000. Nuclear generation in the GDR is planned to grow from 11 percent of total generation in 1986 to 15 percent in 1990, and 30 percent in 2000. Hungarian plans expanded considerably in 1986 with announcements of plans for installation of four 440-MW units and two

1000-MW units at Paks.⁸⁷ Polish plans call for a total of 9860 MW of nuclear capacity by 2000, but official sources concede the infeasibility of such a construction program, and the more current projection (or hope) is for 5760 MW by that year. Finally, Romanian estimates of growth in nuclear generation capacity have varied widely, but now stand at 4500 MW by 1990 and 9600 MW by 2000.⁸⁸

Unsurprisingly, significant delays have been encountered in the East European nuclear construction programs, and further delays are likely to preclude realization of the plans as currently formulated.⁸⁹ What is of interest here is the impact of the Chernobyl accident upon the East European nuclear programs. At the political level, safety fears have been aroused to an extent to which the political authorities have found it prudent to offer a response. *Rude Pravo*, for example, found it necessary to emphasize the safety of the Czech nuclear construction program.⁹⁰ The Poles halted construction activity at Zarnowiec temporarily in order to review safety issues. The GDR has decided for the first time to equip new units with containment structures.⁹¹ The underground press in Eastern Europe reportedly has expressed continual and deep dissatisfaction with official responses and actions in the early period after the Chernobyl accident, and has reflected popular feeling that safety issues require renewed emphasis in the East European nuclear programs. In the context of the reduced credibility of Soviet

⁸⁷It is unclear whether this projection refers to the year 2000 or 2015.

⁸⁸Some references on official plans for expansion of nuclear generation capacity in Eastern Europe are the following: Kramer, "Chernobyl and Eastern Europe," *Problems of Communism*, November-December 1986; *Petroleum Economist*, June 1986; "An Overview of CMEA Atomic Power," *Current Digest of the Soviet Press*, July 13, 1983; "Nuclear Power Production in Czechoslovakia," *Geography*, 1986; "Development of the Nuclear Power Industry in the German Democratic Republic," *Soviet Atomic Energy*, September 1979; RFE RAD Background Report No. 72 (Eastern Europe), May 23, 1986; A. Szpilewicz and J. Maciejka, *Poland's Energy Policy*, Vienna Institute for Comparative Economic Studies, September 1982; *The Energy Situation in the GDR*, Wharton Econometric Forecasting Associates, January 14, 1987; and Jochen Bethkenhagen, *The Energy Policy of the Soviet Union and the GDR*, translated by JPRS, Eastern Europe Report 87-011, January 26, 1987.

⁸⁹Kramer discusses official criticism of delays in the nuclear programs in Eastern Europe. Other discussions of the delays can be found in RFE Czechoslovak Special Report No. 14, August 9, 1983; RFE Polish Special Report No. 18, December 2, 1986; and JPRS, Eastern Europe Report, No. 87-043, March 20, 1987.

⁹⁰"Safety of Nuclear Power Plants Stressed," June 26, 1986, translated by Foreign Broadcast Information Service (FBIS).

⁹¹Indeed, *Neues Deutschland*, June 25, 1986, reprinted Honecker's remark in an interview with a Swedish newspaper that "atomic energy is not the last word."

technology caused by Chernobyl, the political value of increased cooperation with the West may have been increased.⁹²

At the economic level, the Chernobyl accident has not diminished the importance of nuclear power in terms of the overall energy balances of the East European countries, but the resulting new safety concerns have increased the cost of the programs. The considerable delays in the East European nuclear programs have resulted in part from severe financial constraints. Unfortunately, at least from the East European viewpoint, at precisely the time that the projected East European energy supply balance increases the interest in nuclear power generation, Chernobyl has driven the expected costs higher still.

This presents an opportunity for the West, which has extensive experience in nuclear safety design and construction, and an excellent safety record. Nuclear power generation is a priority item for the East European governments, and safety concerns have acquired added priority and greater public awareness in the wake of Chernobyl. It is reasonable, therefore, to expect that Western overtures in this area might receive a favorable response in Eastern Europe. Subsidies for Western provision of safety design, construction, equipment, and operation in nuclear generation might increase important economic ties between the West and the NSWP. The subsidies would be tied to utilization of Western equipment and expertise, and so would not amount to pure subsidization of the NSWP economies, particularly if agreements can be reached (and enforced) to maintain total East European spending on nuclear safety net of the subsidies.⁹³ The political effects of Chernobyl in terms of Soviet credibility can be expected to foster good will toward the West, and greater nuclear safety is likely to serve the political interests of the NSWP regimes. Finally, cooperation with NATO in this area can be expected to reduce the credibility of Soviet assertions about the enmity of the West.

What would such a subsidy program cost? Only crude, order-of-magnitude estimates can be attempted here, partly because nuclear safety/construction costs are influenced heavily by the specific characteristics of each site and generating unit. Such a crude estimate might be constructed as follows. The nuclear units in Eastern Europe (with

⁹²For discussions of these points, see Kramer; RFE Polish Situation Report, No. 10, June 27, 1986; RFE RAD Background Report, No. 64, May 5, 1986; RFE RAD Background Report, No. 66, May 12, 1986; and RFE RAD Background Report, No. 102, July 21, 1986.

⁹³Whereas some nuclear safety technology—particularly certain kinds of computer control equipment—are subject to Coordinating Committee on Export Controls (COCOM) restrictions, most equipment manufactured in the West is not (based upon discussions with Energy Department officials; see DOE News Release R-87-086, July 2, 1987).

some exceptions in Romania) are pressurized water reactors of either 1000 MW or 440 MW capacity. Virtually all lack containments. Between now and the year 2000, ongoing and planned nuclear construction in the Northern Tier is for 21 units totalling almost 15,000 MW. Let us suppose, to be conservative, that actual construction proceeds on all of this capacity. The current Energy Information Administration projection of average construction costs for U.S. units entering commercial operation during the 1990s is about \$3000 per kilowatt.⁹⁴ This includes interest on financial capital invested (AFUDC, Allowance for Funds Used During Construction) because U.S. rate regulation is based on historical costs; these interest costs might not be relevant in the East European context, but let us include them, again to be conservative.⁹⁵ Excluding AFUDC, the projected cost per kilowatt is \$2440. A reactor containment for a 1000 MW pressurized water reactor costs about \$100 million;⁹⁶ let us increase this to, say, \$250 million so as to include other safety equipment and design of interest to the East Europeans. Let us scale this up by 23 percent ($\$3000/\2440) to include interest (or some sort of NSWP version of AFUDC) explicitly. This yields \$307.5 million per 1000 MW.

Since the East European construction program is for 15,000 MW over a period of approximately 15 years, the safety investment of mutual interest, as a very crude approximation, is about \$307.5 million per year. A NATO policy of subsidizing, say, all of the interest on this investment would cost approximately \$31 million per year.

⁹⁴See *Nuclear Power Plant Construction Activity*, Energy Information Administration, DOE/EIA-0473(85).

⁹⁵The *Phase VIII Update (1986) Report for the Energy Economic Data Base Program*, U.S. Department of Energy, DOE/NE-0079, December 1986, reports that total median direct and indirect costs (excluding AFUDC) for a 1000 MW pressurized water reactor are about \$2.44 billion, or about \$2440 per kilowatt.

⁹⁶Department of Energy, fn 95.

VI. MEDICAL SUPPLIES AND EQUIPMENT

Socialist ideology in Eastern Europe maintains that "free" health care is the right of all individuals. This means, in practice, that the health care delivery network has become yet another component of the overall system of central planning. Thus, it is subject to all of the familiar allocational shortcomings inherent in centrally planned economic activity, and also is affected heavily by the larger economic problems besetting the nations of Eastern Europe. Because health care is an "unproductive" service, and so does not enter into the standard computation of aggregated net material product, political incentives to allocate resources into health care delivery may be weaker than is the case for other sectors. In any event, the system of central planning for health care delivery in Eastern Europe has resulted in two basic kinds of problems.⁹⁷ The first is a great disparity in regional access to health care, particularly in terms of an urban/rural dichotomy. This problem is the natural result of central planning, which tends to impose uniformity in terms of fee schedules or salaries despite differences in the attractiveness of various specialties or geographic regions.⁹⁸ The relative inability to use prices to allocate resources leads health care professionals in Eastern Europe to favor specialties over general practice disproportionately,⁹⁹ and to favor practice in urban areas over rural regions heavily, thus resulting in great disparities in access to health care.¹⁰⁰

The second general problem results from a natural bureaucratic preoccupation with indices of health care delivery that are measurable and easily quantifiable, but that do not provide good insights into the

⁹⁷A general discussion of these problems in the East European context can be found in RFE RAD Background Report No. 161, "Health Services in Eastern Europe," November 10, 1986.

⁹⁸See C. M. Lindsay, Steven Honda, and Benjamin Zycher, *Benefits and Burdens of Canadian National Health Insurance*, Roche Laboratories, 1978.

⁹⁹See L. Frances Millard, "Health Care in Poland: From Crisis to Crisis," *International Journal of Health Services*, Vol. 12, No. 3, 1982.

¹⁰⁰See, for example, *Rude Pravo*, "Shortage of Physicians in Northern Bohemia Continues," translated in JPRS, Eastern Europe Report 87-044, March 21, 1987. There have been some attempts to deal with this problem in Eastern Europe through salary differentials and other sorts of inducements to practice in rural regions. In general, the experiments have led to other problems; for example, in Poland a salary differential was offered for relocation in towns under a population of 2000; small towns with populations above the threshold found themselves unable to attract or keep medical practitioners. See the report on "Health and Health Protection of the Polish Population," *International Journal of Health Services*, Vol. 13, No. 3, 1983.

more relevant but elusive issue of the effect of the health care delivery system upon public health.¹⁰¹ This bias in planning indices, and thus resource allocation, contributes to serious and long-term shortages of drugs, supplies, and equipment, and results in significant lags in technological advance relative to health care delivery in the West. These shortages provide an opportunity for expansion in Western economic interaction with Eastern Europe.

The official data on health care delivery in Eastern Europe present an image of steady improvement in the quality and availability of health care services. The data in announcements tend to emphasize growth in the numbers of doctors, nurses, pharmacies, hospitals, hospital beds, clinics, dentists, and specialized health care centers.¹⁰² Czech statistics, for example, show an increase in the number of hospital beds from 76,000 in 1950 to 156,000 in 1984. Similar images are presented in official data published by the other East European ministries charged with health care delivery.¹⁰³ What the aggregate data do not show is the increasing obsolescence of medical equipment in use in Eastern Europe, and the serious shortages of drugs, medicine, disposable needles, bandages, and other basic necessities of health care delivery. These shortages are the result of the unavailability of sufficient hard currency for medical purchases in the West; the relatively low priority of health budgets in the competition among ministries for budget funds; and of the inefficient incentives inherent in centrally planned health care delivery systems.¹⁰⁴

While much of the evidence on the pervasive shortages of basic supplies and medicine in the East European health services is anecdotal or qualitative, some quantitative data are available, and the sheer volume of criticism suggests that serious problems persist. For example, the

¹⁰¹This tendency to emphasize indices that are measurable and quantifiable is a natural result of centrally planned delivery of health care services; competition for budgetary allocations leads bureaucracies to stress yearly growth in such tangibles. See C. M. Lindsay, "A Theory of Government Enterprise," *Journal of Political Economy*, October 1976.

¹⁰²Note that the announcements often refer to expectations for the fruits of future spending or plans; substantial delays and cancellations are frequent because of shortages in funds, materials, and manpower. See, for example, the report on "Health and Health Protection of the Polish Population," fn 100.

¹⁰³See Radio Free Europe, fn 97.

¹⁰⁴For discussions of these problems, see Magdalena Sokolowska, "Social Science and Health Policy in Eastern Europe: Poland as a Case Study," *International Journal of Health Services*, Vol. 4, No. 3, 1974; Andrzej Rychard, "The Health Care System in Poland: The Case of Lodz as Compared with Foreign Regions," *Social Science and Medicine*, Vol. 19, No. 8, 1984; Lajos Casazi and Patricia Kullberg, "Reforming Health Care in Hungary," *Social Science and Medicine*, Vol. 21, No. 8, 1985; and J. Ben Stolpa, "Thirty Years of Socialist Health Care: Dentistry in Hungary," *Journal of the American Dental Association*, June 1980.

Polish health service has suffered from long-term shortages of medicine due to an inability either to produce sufficient quantities and varieties domestically or to obtain them in international markets.¹⁰⁵ Of the 2314 drugs that officially are mandated for provision by the Polish health service, at least 1000 are unavailable or in very short supply. The most critical problems prevail with respect to cancer and heart disease drugs, most of which must be imported from the West for hard currency, but even such common items as vitamin C and aspirin frequently are unavailable. During the first half of 1986, pharmacies were able to supply only half of the penicillin needed, and surgical procedures were postponed or cancelled because of a lack of anesthetics. The problem stems in substantial part from a heavy dependence upon the West for medical supplies, technology, and pharmaceutical inputs; but the hard currency problems faced by Eastern Europe make it difficult to increase procurement in hard currency markets. For 1987, the Polish health service budgeted \$104 million for purchase of drugs from the West, but acknowledged that \$167 million is needed.

The problem is not limited to drugs, but affects virtually all supplies and equipment from the most sophisticated to the mundane. Official reports estimate the need for disposable syringes in Poland at 270 million per year; the one domestic producer of such syringes produces only 160 million, but the difference is not purchased abroad. Instead, disposable syringes often are reused, leading to pervasive "hospital infections and [a] high incidence rate of viral hepatitis."¹⁰⁶ In general, Polish doctors complain of "shortages of everything, from the most intricate and sophisticated modern equipment for diagnosis and treatment to common drugs and detergents and dietary food, from artificial kidneys and cobalt bombs to syringes and needles for single use."¹⁰⁷

Poland is not alone in this regard. The Czech health service suffers from technological obsolescence, and from shortages of funds, supplies, and capital.¹⁰⁸ Shortages of medicine, drugs, and supplies are so pervasive in Czechoslovakia that an underground ("black") market flourishes in all sectors of Czech health delivery.¹⁰⁹ Czech studies estimate that 40 percent of all medical equipment in use is obsolete. Even the East German medical literature complains of shortages of drugs and

¹⁰⁵See RFE Situation Report No. 12 (Poland), August 13, 1986. See also the report on "Health and Health Protection of the Polish Population," fn 100.

¹⁰⁶Report on "Health and Health Protection of the Polish Population," fn 100.

¹⁰⁷*Ibid.*

¹⁰⁸See RFE Situation Report No. 10 (Czechoslovakia), June 27, 1985.

¹⁰⁹This point was made in a Charter 77 report in August 1984, reported by Reuter August 24, 1984. It was confirmed indirectly by *Rude Pravo* (August 17, 1984), which complained about the serious problem of bribery in the health service.

supplies.¹¹⁰ The same general problems afflict the health delivery systems in Hungary, Romania, and Bulgaria.¹¹¹

Official concern is being expressed more openly in Eastern Europe, suggesting both the severity of the problems and the concern of the regimes about the potential adverse political implications of the poor state of health care delivery in Eastern Europe. In March of 1984, the Polish Sjem Commission on Social Policy, Health, and Physical Culture rejected—a rare event indeed—both the report of the Ministry of Chemical and Light Industries (responsible for medicine production) and the proposal of the Ministry of Health and Social Welfare. *Rude Pravo* has criticized the drop in morale within the health service and the long delays in health facility construction.¹¹² In June 1984, the Czech Minister for Health complained publicly about the waste, inefficiency, and technological backwardness of the health care delivery system.¹¹³ This official concern is consistent with the criticism of dissident groups, such as that of Charter 77 noted above (footnote 105), and with the health care demands made by the Polish strikers during the summer of 1980, subsequently included in the Gdansk agreement.

Expansion of trade between the West and Eastern Europe in the medical area is likely to be consistent with the guidelines discussed above. Subsidized sale of, say, medical supplies, equipment, and drugs reasonably can be assumed to serve a political legitimacy goal for the regimes while at the same time fostering popular good will toward the West. Since the subsidies would be tied to purchase of specific Western goods, they would not provide pure subsidies to the NSWP economies, particularly if total East European spending on these goods can be constrained by agreement to be maintained net of the sum of the unit subsidies.

What would such a program cost? Since the specific goods to be subsidized in trading arrangements cannot be known in advance, only a crude, order-of-magnitude cost estimate can be attempted here. In 1983, total U.S. medical care expenditure was \$355.4 billion, or \$409.6 billion in 1986 dollars. Of this total, spending on drugs and medical sundries was \$23.7 billion, or \$24.8 billion in 1986 dollars.¹¹⁴ However,

¹¹⁰See *Zeitschrift fuer Klinische Medizin*, discussed in Radio Free Europe, fn 97.

¹¹¹*Ibid.* Obviously, the problem of "shortages" stems not only from the magnitude of supplies, but also from quantities demanded, which is a function of prices. Since socialist ideology maintains that health care is a right and thus must be "free," efficient pricing is unlikely to solve the problems of health care delivery in Eastern Europe.

¹¹²See fn 109.

¹¹³See fn 97.

¹¹⁴The *Annual Report of the Council of Economic Advisers*, 1985, provides data on the composition of health care spending in the United States for 1983. The figure for total health care spending was inflated with the implicit price deflator for services, whereas

this figure excludes drug preparations and related products dispensed by physicians, hospitals, and other medical services.¹¹⁵ The spending on drugs and medical sundries was roughly half of total personal health care spending excluding hospital care and the services of physicians, dentists, and nursing homes. Since the latter services comprise over 85 percent of personal health care spending, it seems conservative to assume that, say, 10 percent of that spending was for drugs and sundries.¹¹⁶ Let us assume, then, that an additional \$30 billion in 1986 dollars was spent on drugs and sundries in connection with delivery of the latter services. This yields a total of about \$55 billion, or about 1.5 percent of GNP in 1983.

The CIA estimate of East European GNP in 1983 was about \$818.0 billion in 1986 dollars.¹¹⁷ If we apply the same percent age of GNP to this figure, we obtain a figure of about \$12 billion as a crude estimate of annual East European spending on drugs and medical sundries if those nations were to have the same availability of such goods as the United States. GNP in the Northern Tier in 1983 was about \$553.7 billion, again in 1986 dollars, yielding a Northern Tier spending level for drugs and sundries of about \$8 billion.

The report on "Health and Health Protection of the Polish Population" (footnote 100) estimates a 25 percent overall shortage of drugs and supplies in the Polish Health Service. If we apply that percentage, we calculate a shortage of \$3 billion for Eastern Europe as a whole, or \$2 billion for the Northern Tier. A subsidy of, say, 5 percent, for sale of Western medical supplies and drugs might cost, as a crude order-of-magnitude approximation, about \$150 million per year for Eastern Europe as a whole, or about \$100 million for the Northern Tier.

the figure for spending on drugs and medical sundries was inflated with the implicit price deflator for nondurable goods.

¹¹⁵See Statistical Table 2.4 of *The National Income and Product Accounts of the United States, 1929-82*, U.S. Department of Commerce, September 1986.

¹¹⁶Of the \$313.3 billion spent on personal health care in 1983, \$266.8 billion was for these latter services, amounting to \$293.5 billion in 1986 dollars. This figure of 10 percent is consistent with the findings of a study that found drug expenditures to be 7.3 percent of total U.S. hospital expenditures in 1978. See Anne A. Scitovsky, "Estimating the Direct Costs of Illness," *Health and Society*, Vol. 60, No. 3, 1982, p. 470.

¹¹⁷The 1987 *Handbook of Economic Statistics* lists 1984 GNP at \$847 billion and a 1984 real growth rate of 3.5 percent.

VII. JOINT BUSINESS VENTURES IN EASTERN EUROPE

The central goal of the general economic policies outlined in this study is an expansion of economic cooperation and ties between Eastern Europe and the West, in ways consistent with the guidelines discussed earlier in this text. Three areas with obvious and significant potential for such expansion were discussed in the preceding sections. As direct and indirect discussions between Western and NSWP governments and other institutions expand, it is likely that many other areas of mutual interest will be delineated. Since it is economic cooperation *per se* that is of interest, rather than trade in particular areas,¹¹⁸ it is appropriate to consider facilitation and subsidization of institutional arrangements that might facilitate expansion of trade. Such institutional arrangements might, for example, illuminate opportunities for cooperation not obvious at present. More to the point, promotion of trading arrangements instead of particular trades might facilitate expansion of cooperation and ties in a broad range of specific areas.

One such institutional arrangement is direct Western investment in East European economic activity, undertaken jointly (or in cooperation agreements) with firms or enterprises in Eastern Europe. The East European regimes (with the exception of the GDR) have displayed some interest in such joint ventures over the past decade or so, and there is evidence that this interest is increasing. Hungary and Romania in 1972 passed laws permitting equity participation by foreign firms in domestic production enterprises. They were followed by Poland in 1976 and Bulgaria in 1980.¹¹⁹ The primary goal of those early efforts was acquisition of advanced technology from the West, along with associated technical and managerial expertise. The most important restriction specified in the early laws was a proscription on majority participation by foreigners. Efforts by the East European regimes to ease their difficulties in hard currency balances have led to a significant easing of restrictions and to a change in emphasis. What is of interest to the East Europeans now is predominantly joint ventures in production of goods that can be exported to hard currency

¹¹⁸Trade restrictions in, for example, sensitive military technology are of particular interest.

¹¹⁹GDR law does not proscribe such arrangements, but no policies have been adopted to encourage investment.

markets, or production of goods that can be substituted for imports from hard currency markets. Aside from the potential benefits in terms of the hard currency balance of payments, joint ventures offer, from the East European standpoint, an avenue for acquisition of foreign capital other than through assumption of additional debt.

This shift in emphasis is reflected by recent changes in East European treatment of joint enterprises. Hungarian and Polish laws have relaxed the proscriptions on majority participation by foreign firms in some cases,¹²⁰ while the 1980 Bulgarian decree placed no ceiling on foreign capital participation. In 1979, Hungary removed the proscription on joint ventures in manufacturing, and in 1982 established custom-free zones in which joint ventures have automatic rights to trade outside the CMEA. Moreover, wages, prices, and enterprise investments are exempt from governmental intervention, unlike the case with domestic firms, and accounts are maintained in hard currency so that the foreign exchange regulations can be avoided. The net intended effect of the custom-free zones is expansion of exports to hard currency markets. Raw materials and components can be imported free from tariffs if final products are exported. A new law on joint ventures took effect in Poland in July of 1986; aside from clarifying and streamlining administrative procedures for establishment of joint ventures in Poland, the law specifies priorities for introduction of advanced technology and management processes and production of goods for export to hard currency markets. Moreover, the 1986 law sharply reduced taxes on joint venture profits, and provides tax incentives for hard currency earnings.

The increased interest in joint ventures with Western firms perhaps is illustrated best by the new Czech willingness to negotiate such arrangements. Accompanying a 1985 invitation by Czech officials to Western countries, "to seek business deals with Czechoslovakia,"¹²¹ it was announced that direct Western investment in Czech industry would be allowed. Guidelines issued by the Ministry of Foreign Trade limit foreign firms to a 49 percent equity share, but allow repatriation of foreigners' profits overseas. The Czechs have announced priorities for joint ventures in production of machine tools, consumer electronic goods, energy-efficient equipment, and tourism services; the regulations

¹²⁰The Hungarian restriction can be waived with authorization from the Minister of Finance for joint ventures in banking and other services; no ceiling applies to small business ventures in Poland under the so-called Polonia program. However, the Polish firms are restricted to a maximum of 200 employees, and are limited to light industry and consumer services.

¹²¹See Radio Free Europe Situation Report No. 15, September 24, 1985.

are designed to promote export of joint venture products to hard currency markets.¹²²

This general emphasis on production of goods for export to hard currency markets is likely to be consistent with the practical opportunities open to Western firms participating in joint enterprises in Eastern Europe. The major alternative would be production of goods for export to other countries within CMEA, particularly the Soviet Union; but the potential problems inherent in use of joint ventures for that purpose are likely to be formidable. Prices (in transferable rubles) in all likelihood would have to be negotiated in the normal course of CMEA bargaining, but that bargaining process captures quality improvements—presumably an important characteristic of joint venture outputs—only crudely. Second, inconsistencies in the exchange rates between transferable rubles, the East European currencies, and, say, dollars can have severe impacts on the profitability of joint venture sales in Eastern Europe or the Soviet Union. This would happen if the transformation of transferable rubles into an East European denomination and then into dollars yields a dollar price that lies below world market prices or costs.¹²³ Third, the Foreign Trade Ministry of the nation in which the joint venture is located must be willing to market the products in the rest of CMEA. This can prove problematical because the incentive to do so depends upon the overall trade balance between the producing nation and each of the other members of CMEA.¹²⁴ And one or more of the other members of CMEA must be willing to accept the products; unfortunately, incentives for centrally planned systems to change purchasing patterns are mixed at best.

In short, joint ventures are likely to emphasize sales in hard currency markets, both because of the clear preferences of the East European governments, and because of the problems likely to afflict attempts to sell significant amounts of goods produced by joint ventures in the rest of CMEA. The bias toward dealings in hard currency markets may be consistent with the overall policy goals of trade expansion between Eastern Europe and the West: if the goal is an expansion of economic ties *per se*, then a combination of production, marketing, and sales is likely to further that end more fully than joint production

¹²²See Josef C. Brada, "Joint Ventures in Czechoslovakia," *PlanEcon Report*, September 11, 1986.

¹²³An example of just such a bias, using 1986 exchange rates between transferable rubles, dollars, and forints, is provided in Paul Marer, "Attracting Foreign Equity Capital to Hungary: A Western Perspective," manuscript, March 1987.

¹²⁴Indeed, Marer notes that "There is no incentive to export without receiving a specific compensation because . . . it is in the interest of every CMEA country to run as large a transferable ruble deficit as its trade partners will allow." *Ibid.*

ventures alone. There is an indirect effect as well: as joint ventures earn more hard currency for the East European governments, they are likely to devote more attention toward removing obstacles and facilitating successful operations.

Numerous other potential problems can affect the prospects and operations of joint ventures in Eastern Europe, and Western governments may have a useful role to play in terms of negotiations over them. Investments made in Eastern Europe by Western firms clearly can run risks of nationalization; hard currency regulations may make it difficult for the Western share of earnings to be taken out of the host country in hard currency; and taxation levels may prove burdensome, particularly after investments in fixed capital are sunk.¹²⁵ Negotiations over such institutional arrangements under some circumstances may be more fruitful if conducted on a government-to-government basis than on a bilateral basis with respect to each prospective joint venture arrangement.¹²⁶

The current scale of foreign direct investment in Eastern Europe is low, and is concentrated largely in Hungary and Poland.¹²⁷ This low level, combined with the new enhanced interest of the East Europeans, may suggest that a significant expansion over time in East European/Western joint business ventures in Eastern Europe may be achievable. Given the scale of Western investment now present in Eastern Europe, an order-of-magnitude goal might be new capital investment by Western firms of, say, \$100 million per year. If all of the interest on this capital investment were to be subsidized, the cost of the subsidies would be about \$10 million per year.¹²⁸

¹²⁵See Benjamin Klein, Robert G. Crawford, and Armen A. Alchian, "Vertical Integration, Appropriable Rents, and the Competitive Contracting Process," *Journal of Law and Economics*, 1978.

¹²⁶An example is the Investment Protection Agreement signed in April 1986 between the FRG and Hungary. See RFE Situation Report No. 7 (Hungary), July 11, 1986.

¹²⁷Marer, (fn 123) estimates total foreign capital investment in Hungarian joint ventures at \$80 million. McMillan estimates the total direct foreign investment in Eastern Europe in the mid-1980s at one-half to three-quarters of a billion dollars, and the output of the Polonia firms in Poland at over 5 percent of the output of the small business sector (but well under 1 percent of total national income). See Carl H. McMillan, "Trends in Direct Investment and the Transfer of Technology," in Bela Csikos-Nagy and David G. Young (eds.), *East-West Economic Relations in the Changing Global Environment*, New York: St. Martin's Press, 1986.

¹²⁸Note that the investments in physical capital in Eastern Europe are likely to be the riskiest because, once made, they can be appropriated in whole or in part through policy shifts on the part of the East European governments. For example, increases in taxation levels can accomplish that end. Thus, subsidies for investment in physical capital may be the most efficacious in terms of inducing an increase in the interest of Western firms in joint ventures with East European enterprises. See Klein, Crawford, and Alchian, fn 125.

VIII. CONCLUSIONS

This report has attempted to demonstrate that the Soviets have important concerns about the military reliability of its NSWP allies, and that the concerns stem from extensive evidence of the allies' political unreliability. The Soviets are sufficiently worried to have invested considerable resources and effort, and, perhaps, to have accepted inefficient military operations in an ongoing attempt to remedy the situation. There is evidence in long-term Soviet economic policies in Eastern Europe to support the argument that higher levels of trade and economic ties between the West and the NSWP would exacerbate the Soviet concerns. And there is strong evidence that Soviet and NSWP interests diverge in important respects in the face of possible increased economic interaction with the West, and that inherent conflicts among various Soviet policy goals in Eastern Europe provide the NSWP regimes with some room for exploitation of increased opportunities for trade with the United States and its NATO partners.¹²⁹

The economic problems of the NSWP in a short-run sense result in substantial part from shortages of hard currency and difficulties in acquisition of advanced (that is, Western) technology. That, certainly, is the perception of the NSWP regimes. The incentives for the East Europeans to expand economic ties with the West are strong. From the Western standpoint, Soviet fears about the political, and thus reliability, effects of increased interaction provide a reasonable rationale for efforts to expand economic dealings with the NSWP. For the NSWP, there exist numerous economic problems that represent conspicuous failings of socialism, but for which the solutions are likely to be costly but advantageous in terms of domestic political support and long-term economic performance. For the West, some strengthening of deterrence is an attractive goal, and, in this context, a reasonable one.

A convergence of interests in an expansion of trade between NATO and the NSWP appears to have developed. Sections IV-VII gave examples of areas in which greater economic ties would serve the interests of the NSWP regimes without violating NATO interests. The deterrence effects of expanded trade are difficult to quantify and, indeed, may be even somewhat speculative. Therefore, our goals must remain modest, and resources devoted to subsidization of expanded NATO/NSWP trade must remain modest as well. It follows that the

¹²⁹See fn 40.

process of expanding governmental contacts and exploring areas and opportunities of mutual interest should be pursued at a reasonable level as well.

It seems that an appropriate means with which to initiate discussions of areas and methods with which to expand economic ties with Eastern Europe is through established multilateral and bilateral forums. Ideas and proposals can be presented for consideration and discussion at the meetings of the Committee on Security and Cooperation in Europe. Informal contacts and discussions can be initiated at multilateral arms talks. The UN Commission for Europe could be used as a forum for exploration of proposals. Regular meetings on specific issues, such as transnational pollution control, are an obvious possibility for promotion of expanded cooperation. And, just as clearly, the agendas for bilateral visits can include consideration of areas for expanded economic interaction. In short, the process of expanding contacts and discussions, and of reaching agreements, can be maintained at a reasonably low-key level, with the expectation that Western interests will be served.